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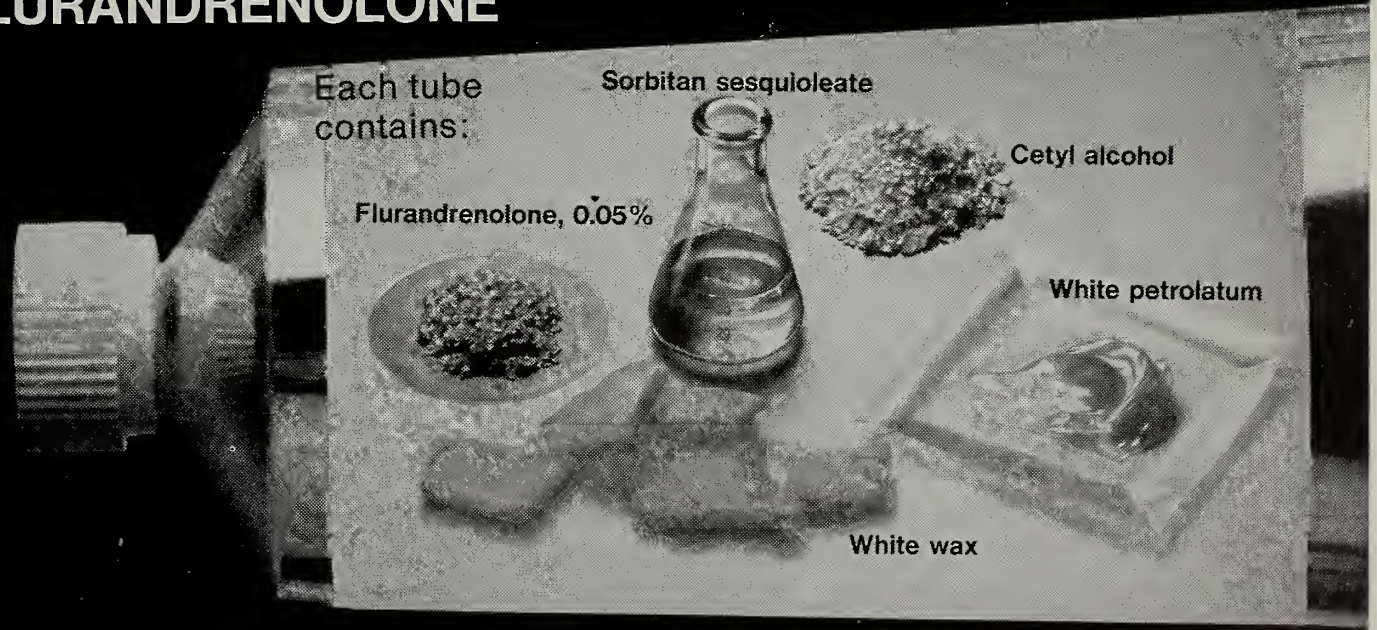


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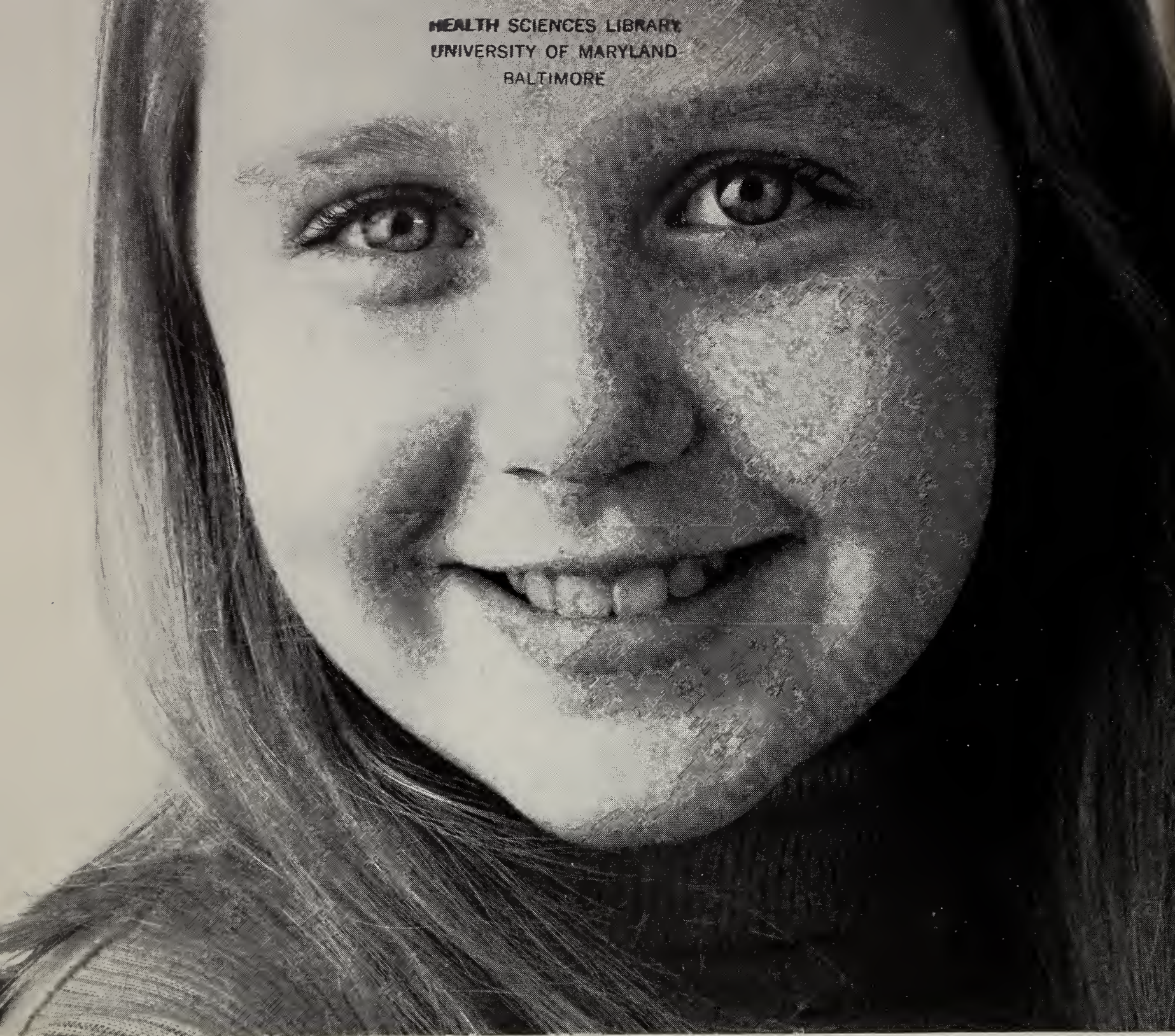


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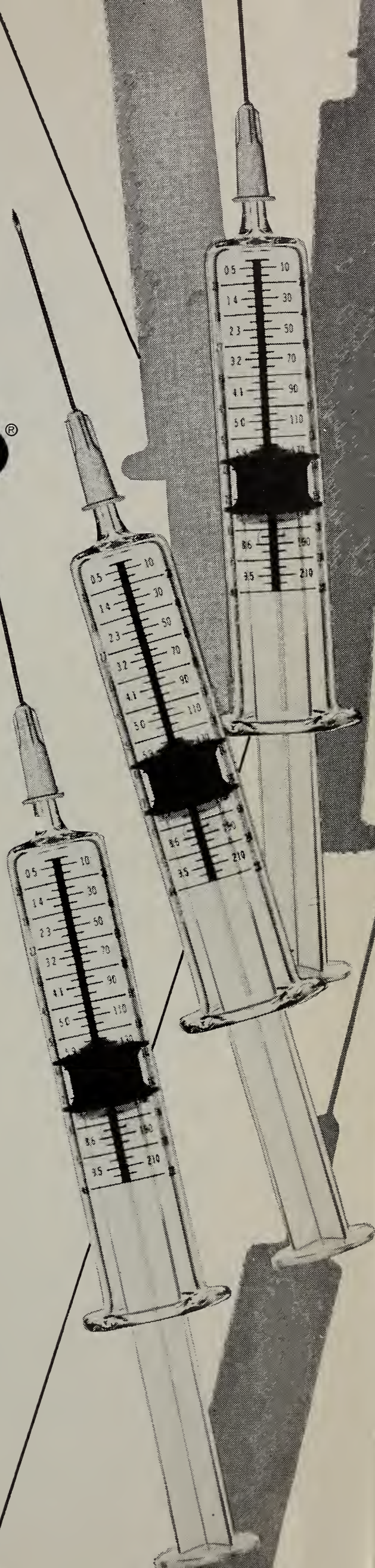


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# Scientific P A P E R

## ORAL PROGESTATIONAL AGENTS: THERAPY and COMPLICATIONS

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Generalized use of oral progestogens began in 1960 with the introduction in the United States of the first oral contraceptive agent. Since then there has been an ever increasing number of women taking these medications as well as an increase in the indications for their use. The agents available and variations in methods of their administration continue to increase markedly. Never before have so many apparently healthy women been taking routine medications. It is for these reasons that a brief review of some of the indications for the use of these agents and their potential complications is in order.

About one third of all women started on oral progestins will have side effects apparently related to the medication. Table I lists the side effects grouped as to the relative seriousness of each symptom or sign, as well as relative and absolute contraindications to oral contraceptive use.

Nausea, vomiting, breakthrough bleeding, and breast tenderness usually occur during the first cycle or two of therapy and then decrease. Weight gain can be a difficult problem for some women. The mechanism whereby the progestins cause this effect is apparently threefold; stimulation of appetite, an anabolic effect, and fluid retention. Most women will have a change

to a positive nitrogen balance which may explain some of the increased weight. Fluid retention contributes very little to the overall weight gain in most patients. Progesterone causes a naturesis which leads to a secondary rise in aldosterone, although estrogens may cause retention of salt and water. The major cause of weight gain is due to appetite stimulation. The mechanism for this effect is unknown.

### SIDE EFFECTS OF ORAL CONTRACEPTIVES

#### Minor:

Nausea & vomiting	Vaginal discharge
Weight gain	Amenorrhea
Breakthrough bleeding	Abdominal discomfort
Breast tenderness	Headache
Nervousness & Depression	Edema
Chloasma	Decrease Lacrimation
	Stomatitis

#### Major:

Thromboembolic disease	Erythema multiforme
Migraine headache	Erythema nodosum
Jaundice	Rash or allergic reaction
Decrease glucose tolerance	Hypertension
Loss of scalp hair	Hirsutism

#### Contraindications to Use:

History of thrombophlebitis or cerebral thrombosis  
Breast carcinoma  
Liver disease and/or jaundice  
Breast feeding

#### Use with Caution in the Presence of:

Leiomyomata uteri  
Kidney disease  
Hypertension and heart disease  
Epilepsy  
Asthma  
Varicose veins  
Diabetes Mellitus

\* Presented at the Annual Meeting of the South Dakota Medical Association, in Aberdeen, May 1968.



Amenorrhea while on the progestins is not uncommon and is related to the length of time the patient has been on the medication. This results from the atrophic effect on the endometrium and pseudodecidual reaction of the stroma to the progestin. Of more concern is the amenorrhea which follows discontinuance of the pill.

Most women will not resume periods until at least six weeks following taking the last pill. According to Rice-Wray, 87-98% of patients will ovulate within three months after discontinuance of the medication.<sup>1</sup> Although uncommon, some women have had from one year to two years of amenorrhea. To date, all patients have resumed periods. There appears to be no relationship between the length of time on the pill or the type of medication and the time required for resumption of ovulation. There is no evidence that there is increased or decreased fertility following oral progestin usage. Approximately 65% of women attempting to conceive will be pregnant within three months after discontinuance of the pill.

Depression occurs in some women but most often there are some preceding emotional problems. The progestins may exaggerate the existing symptoms and on rare occasion the medications will have to be discontinued because of severe depression. The mechanism for this is unknown.

Chloasma is present in approximately 6% of women using progestins.<sup>2</sup> Exposure to sunlight will enhance the pigmentation.

Vaginal discharge is increased because of the increased quantities and quality of mucus from the cervix and vagina. Cervical erosions are more common, and erosions will increase the amount of cervical mucus. Because of the increased quantities of mucus, the vaginal environment is more conducive for vaginal infections. Although there is a general impression that vaginitis, especially monilial, is more common and more difficult to treat, a recent study indicated that there is no change in vaginal flora in women on oral progestins.<sup>3</sup> Rarely the medication must be discontinued to clear the vaginitis.

Headache is a very difficult symptom to evaluate. Good control studies are lacking. Where control studies have been attempted the evidence would indicate the incidence of headache is no greater and perhaps somewhat lower in women on oral progestins. Specific types of headaches, i.e. migraine, may be aggravated by these medications. Gardner recently reported on nine cases of brain damage in women taking

"The Pill."<sup>4</sup> Four of the nine cases had permanent brain damage. These facts serve as a warning to watch for signs of migraine or exaggeration of migraine attacks in women who are on oral progestins. The mechanism resulting in this complication is not known. There may be some increased sensitivity of the cerebral vessels to vasoconstriction during migraine attacks. These effects resulting in increased stasis in combination with some increased blood coagulability may result in thrombosis and permanent brain damage.

Several patients have reported dryness of their eyes after starting on the pills. Lacrima-tion tests revealed decreased or absent tearing. After discontinuing the medication, normal lacrimation resumed. This problem is especially bothersome and potentially hazardous in women using contact lenses.

Of the major side effects, thromboembolic disease has received the most publicity. The specific changes produced in blood coagulation factors are noted below. Most studies, however, report on in vitro hypercoagulability on oral progestins. The actual effect in vivo is yet to be answered. There are several reports on the increased incidence of thrombophlebitis and pulmonary emboli in patients on the oral contraceptives,<sup>5, 6, 7</sup> but these studies have all been retrospective. Caution must be used in drawing any conclusions from this information. There is, likewise, insufficient information to establish the incidence of these problems in the population of women not taking the pills. There is a lack of control of such variables as smoking, nutrition, stress factors, etc., which are known to change blood coagulation. The risk of the medication must be compared to the risk imposed by pregnancy.

Serious consideration must be given to starting women on oral progestins in the immediate post-partum period. It is at this time that a woman is at her greatest risk from thromboembolic disease. Adding the unknown effect of these medications to an already hypercoagulable state must be weighed against the necessity for the use of the medication at that time.

Jaundice can be a result of cholestasis produced by the estrogens in the oral progestational agents. If a patient has a history of jaundice during pregnancy, she should be followed carefully and perhaps not put on these medications at all.

Decreased glucose tolerance has been noted in some women taking oral progestins. Whether this is a similar type of "stress test" as in pregnancy or is actually a tendency to produce dia-



betes is not clear. It would seem most probable that the class A diabetic is only "unmasked" by the agents. Spellacy found that the mean blood glucose did not change with the use of the oral progestins.<sup>8</sup> There was, however, a significant elevation in the plasma insulin levels in the drug treated group. The current evidence would indicate that diabetes mellitus is a genetically predetermined disease and the effect of oral progestins in altering the time of onset of the overt manifestations is unknown. Patients who have diabetes when placed on the pills should be followed carefully. The progestins may cause an alteration in their diabetic control resulting usually in slight increased insulin requirements.

Oral progestins may produce or enhance high blood pressure in susceptible patients. Abnormalities in renin-substrate concentration and in its reactivity to exogenous renin have been noted. Endogenous renin activity and aldosterone excretion have also been noted to be altered.<sup>9</sup> The importance of such biochemical abnormalities in the development of hypertension is not clear because similar effects occur in normotensive women taking oral contraceptives. Progesterone causes a naturesic effect with secondary increases in aldosterone which results in a variable increase in serum sodium. Estrogens may also produce some sodium retention.<sup>10</sup>

These same effects may make seizure control more difficult in the epileptic patient. Because of these various effects, the oral progestins should be used with caution in women with hypertension or renal disease and epilepsy.

Patients with leiomyomata uteri should be followed more frequently than the usual patient when placed on the oral progestins. I have placed several women with definitely palpable myomata on the pills and have never noted any enlargement. These patients should be examined every three to six months. If the myomata increase in size, the medication should be discontinued.

Libido is usually increased in women taking the oral progestins. This effect can be related to two apparent causes. First, the relief of fear of pregnancy would appear to be one of the major causes for the increase in libido. The next factor that may relate to this increase is the testosterone effect of some of these progestational agents. Although an increase in libido is the usual result, some women will have a decrease in libido. This decrease in libido can be attributed to some tiredness and depression associated with the pill. I have been unable to correlate this decrease with any other factors.

Numerous laboratory tests are altered in the patient taking oral progestins. Most of the alterations have no demonstrable effect on the patient but knowledge of the alterations is essential in evaluating diagnostic tests. The following charts were prepared by literature review. The column labeled "%" reflects the percentage of patients, in whom this alteration occurred.

**TABLE II**  
**BLOOD COAGULATION**

Laboratory Test	Results	%
Blood Coagulation	N	
Prothrombin Time	N	
Heparin Plasma Clotting Time		
Partial Thromboplastin Time	↑	
Thromboplastin Generation Test	↓	
Prothrombin Levels	↑	
Prothrombin and Proconvertin	↑	
Fibrinogen	↑	
Fibrinolysins	↑	
Factors VII	↑	100
VIII	↑	
IX	↑	
X	↑	
VII Specific	↑	100
Cephalin Time	N	

Many of the blood coagulation factors are increased. It is of interest to note that coagulation time remains normal. The over-all in vivo effect of the laboratory alteration is not definitely known. At a recent meeting Dr. Elizabeth Connell reported on her studies of coagulation in patients on oral contraceptives. She noted no change in Factor VII, VIII, or fibrinogen. She did find an increase in Factor X. In-vivo coagulation studies revealed some increased coagulability on oral progestins but not to the degree noted in pregnancy.

Erythrocyte sedimentation rate is increased in about 45% of women on oral progestins.<sup>11</sup> The increase is mild to moderate but must be considered when this test is used for other diagnostic purposes.

**TABLE III**  
**LIVER FUNCTION STUDIES**

Laboratory Test	Results	%
1. Bromsulfthalein	↑	19-48
2. Thymol Turbidity	↑	11
3. SGPT	↑	6
4. SGOT	↑	7
5. Serum Alkaline Phosphatase	↑	2
6. Bilirubin	↑	Rare



Liver function is apparently unaltered by the oral progestins. In some patients there is a mild increase in Bromsulphthalein retention. If cholestatic jaundice should occur, liver damage may result.

**TABLE IV**  
**ADRENAL GLAND**

Laboratory Test	Results	%
1. 17-OH Corticosteroids	N	
2. 17-Ketosteroids	N	
3. 17-Ketogenic steroids	N	
4. Plasma Cortisol	N	

Adrenal function appears to be unaltered by the use of the oral progestins.

**TABLE V**  
**OVARIAN and PITUITARY FUNCTION**

Laboratory Test	Results	%
1. Estrogens	↓	100
2. Pregnanediol	↓	100
3. Prenanetriol	↓	100
4. FSH	↓	100

The pituitary-hypothalamic centers are suppressed with a resultant decrease in release of pituitary gonadotropins. The decreased FSH leads to the expected decrease in secretion of ovarian steroids.

The suppression of pituitary and ovarian function resulting in anovulation is the main mechanism accounting for the effectiveness of the oral progestins in preventing pregnancy. It is known that some women will breakthrough and ovulate on these medications. Even if the patient ovulates and the ovum is fertilized pregnancy does not occur because of the unfavorable atrophic endometrium. Also the cervical mucus is unfavorable for sperm penetration because of its thick tenacious character. So it would appear the combination oral progestins work by a combination of three mechanisms. Since the sequential type medications do not alter cervical mucus or the endometrial cycle and breakthrough ovulation can occur, pregnancy is a possibility. Approximately one to two women out of 100 on sequential medication will become pregnant within one year.

The actual function of the thyroid gland is essentially unchanged but various thyroid tests are altered. Most of these alterations are secondary to an increase in thyroid binding proteins in

the serum. These alterations as noted in the chart must be kept in mind when evaluating thyroid function.

**TABLE VI**  
**THYROID FUNCTION**

Laboratory Test	Results	%
1. PBI	↑	100
2. BEI	↑	100
3. T <sub>3</sub> Uptake	↓	100
4. TBG	↑	100
5. TBPA	↑	95

**TABLE VII**  
**BIRTH CONTROL PILLS**

Norethindrone 2 mg + 0.1 mg Mestranol — — Norinyl
Norethindrone 1 mg + 0.05 mg Mestranol — — Norinyl
Norethindrone 10 mg + 0.06 mg Mestranol — — Ortho Novum
Norethindrone 2 mg + 0.1 mg Mestranol — — Ortho Novum
Norethindrone 1 mg + 0.05 mg Mestranol — — Ortho Novum
Norethindrone 2 mg + 0.08 mg Mestranol — — Ortho Novum SQ
Norethindrone 2.15 mg + 0.05 mg Ethinyl Estradiol Norlestrin
Norethindrone 1 mg + 0.05 mg Ethinyl Estradiol Norlestrin
Norethynodrel 5 mg + 0.075 mg Mestranol — — Enovid
Norethynodrel 9.85 mg + 0.15 mg Mestranol — — Enovid
Norethynodrel 2.5 mg + 0.1 mg Mestranol — — Enovid E
Medroxyprogesterone Acetate 10 mg + 0.05 mg Ethinyl Estradiol — Provest
Ethinodiol Diacetate 1 mg + 0.1 mg Mestranol — — Ovulen
Chlormadinone Acetate 2 mg + 80 mcg Mestranol — — C-Quens
Dimethisterone 25 mg + 0.1 mg Ethinyl Estradiol — Oracon
Norgestrel 0.5 mg + 0.05 mg Ethinyl Estradiol — Ovral

There are numerous progestins available and several methods of taking them. For the most part the chemical structure of the progestational component of the agents more nearly resembles methyl testosterone than progesterone.

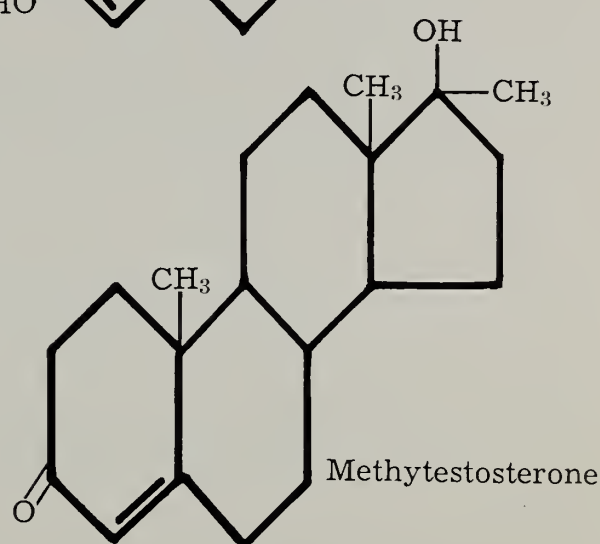
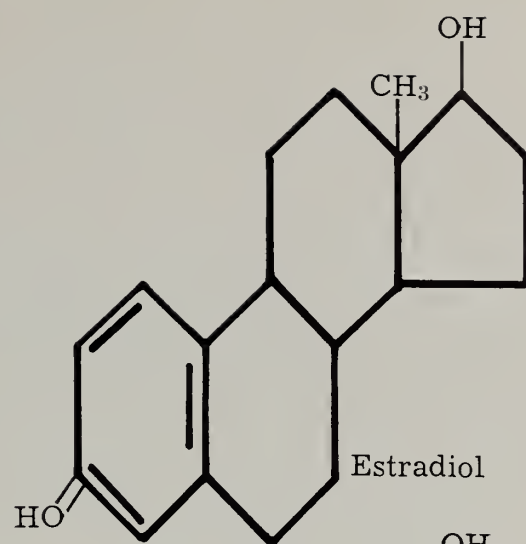
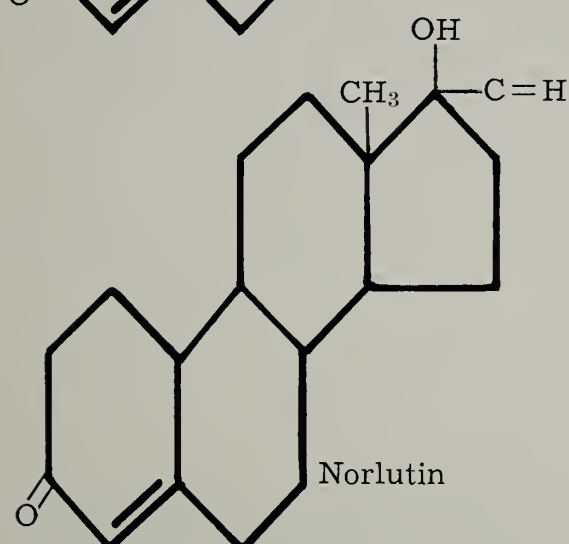
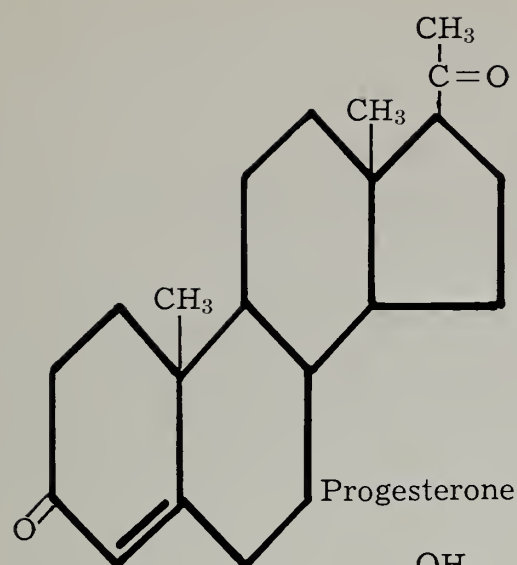
The structural similarity of these agents to testosterone can explain some of their side effects. Most of them are nor-testosterone derivatives. Increased hirsutism and amenorrhea may result from this similarity; the amenorrhea resulting from the atrophic effect of testosterone-like substances on the endometrium.

Uses of Progestins:

- (1) Contraception: This is the most common indication for their use. The prior discussion pertains to this use.
- (2) Pregnancy Testing: For this purpose I prefer medroxyprogesterone acetate 10



TABLE VIII



mg. and ethinyl estradiol 0.05 mg. or medroxyprogesterone acetate 10 mg. alone given in a dosage of one tablet per day for three to five days. The patient should have a period about two days after discontinuing the medication. If she has just ovulated while taking the test medication, her period may be delayed for seven to ten days.

- (3) Treatment of Endometriosis: The management of endometriosis has changed considerably since the advent of the oral progestins. The usual plan of therapy is increasing continuous daily doses of the oral agent to prevent vaginal bleeding. Menstruation should be prevented for nine months to one year.
- (4) Treatment of Dysfunctional Uterine Bleeding: Before using medical means to control this problem, the physician must be sure there are no organic causes for the bleeding. Pregnancy episodes must also be eliminated. I prefer norethindrone 2 mg. with mestranol 0.1 mg. initial therapy. This therapy is continued for several cycles and then, as the situation dictates, switched to a lower dose medication or discontinuation of therapy. This type of therapy has also been relatively success-

ful in controlling bleeding secondary to submucous leiomyomata. I prefer correcting the patient's anemia and replenishing her iron store before definitive surgery. This usually takes from four to six weeks. The success of these medications in treatment of this type of menorrhagia is apparently a result of their production of an atrophic or "resting" endometrium, there being a decreased thickness and vascularity of the endometrium.

- (5) Threatened Abortion: Threatened abortion is most frequently a result of a serious chromosomal accident, a "blighted ovum," or defective implantation. Less than 1% are a result of corpus luteum failure with a resulting progesterone deficiency. In these rare situations where a hormonal deficiency is the etiology, the oral progestins can be helpful. Medroxyprogesterone acetate has the most nearly pure progestational effect on the endometrium and has no apparent androgenic effects. Because of these facts I prefer this agent over the others currently available. The patient is given 10 mg. per day up to the 120th day of gestation. The placenta should be capable of producing adequate amounts of progesterone at this



point if the pregnancy is normal. Care should be taken to make sure the pregnancy is viable. These medications can result in a missed abortion with its resulting complications such as infection or hypofibrinogenemia.

- (6) Medical Curettage: In cases of menorrhagia secondary to dysfunctional bleeding patterns the oral progestins can be used to build up a secretory endometrium with more complete endometrial shedding. This is most useful in younger patients. There is no place for this therapy in the postmenopausal patient.
- (7) Treatment of Acne: One of the interesting effects of oral progestins is the improvement of the complexion of young women with acne. The mechanism resulting in this outcome is unknown. One possible mode of action is decreasing the quantity or quality of secretions of the sebaceous glands. Many young women can be helped with their complexion problem and permanent scarring from acne prevented.
- (8) Dysmenorrhea: A great variety of treatment plans and medications are available for relieving dysmenorrhea. The oral progestins are probably the most consistently helpful agents. By suppressing ovulation and the patient's production of progesterone, the symptoms are relieved. Any of the currently available agents can be used in a cyclic manner.
- (9) Treatment of Chronic Pelvic Inflammatory Disease: Patients with this disease frequently have cyclic exacerbations of pain. There is some reason to believe ovulation with its resulting intraperitoneal bleeding and loss of fluid may cause the inflammatory process to flare up. In cases where medical control of chronic P.I.D. is desirable, I use the oral progestins in a cyclic manner in conjunction with other means of therapy. This frequently helps to reduce the patient's pain and inflammatory reaction to a degree where surgical therapy can be more safely undertaken.
- (10) Carcinoma of the Endometrium: Carcinoma of the endometrium is best treated by radiation and surgery. If malignancy persists after complete radiation or if metastatic disease develops, oral progestones can be used as a chemotherapeutic agent. Although this treatment does not

cure the disease, it can be helpful in decreasing the rate of growth and keeping the patient more comfortable. Other chemotherapeutic agents are of little or no value in treatment of endometrial carcinoma. Medroxyprogesterone acetate (Provera®) in a continuous oral daily dose to give 2 gm. per week can be used. Recently chlormadenone acetate (Lutiny®) on a continuous daily basis has been used with good results.<sup>12</sup> The injectable forms of the progestational agents are less expensive but have the disadvantage of repeat intramuscular injection. Approximately 30 percent of patients will get some degree of palliation.

- (11) Mastodynia: Some women will have cyclic painful swollen breasts. Development of multiple small cystic nodules frequently occurs and requires biopsy. I have found oral progesterone to be helpful in this type of mastodynia. Cyclic therapy with 5mg. norethindrone acetate (Norlutate®) or 5 mg. medroxyprogesterone acetate is used. The medication can be started on day five of the menstrual cycle and given for 20 days. There appears to be little or no menstrual irregularity with this treatment and the results have been gratifying.
- (12) Summary: Side effects of oral progestins are not uncommon but to date no absolute positive correlation of serious side effects can be made.

Alteration in various laboratory tests is common. These changes apparently have very little significance other than changing interpretation of baseline values for these tests.

Oral progestins can be used for a variety of medical problems. They are most widely used for contraceptives.

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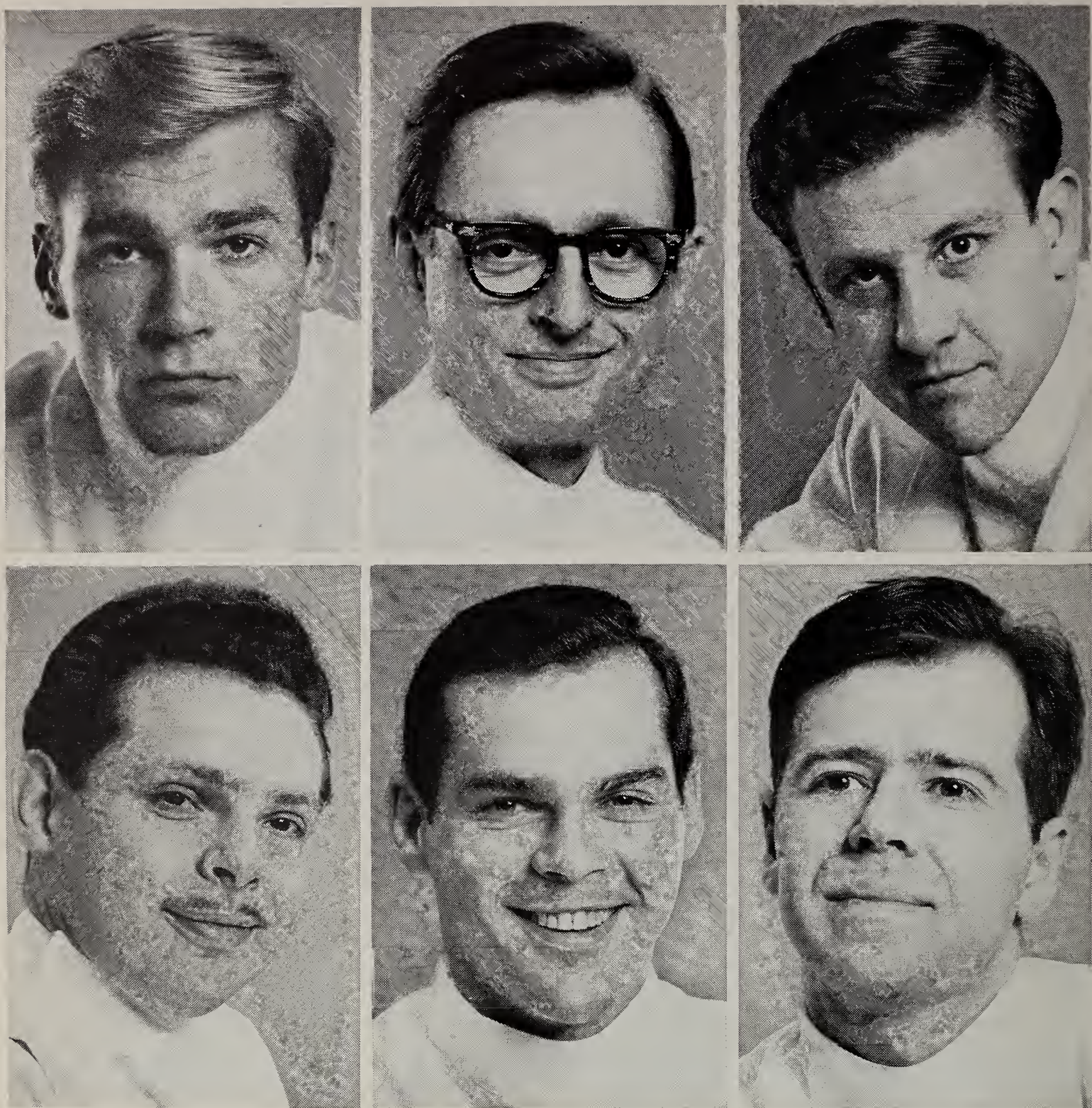
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You might also say that all interns aren't alike, either.







## TREATMENT OF CARCINOMA OF THE PROSTATE\*

John A. Ochsner, M.D.  
Sioux Falls, S. D.

Carcinoma of the prostate is next to carcinoma of the skin as the most common malignancy in the male. As a focal "latent" carcinoma (clinically undetectable), it is present in approximately 15% of men over age 50. As a clinical or symptomatic disease, it is not nearly that common. Though the number of patients that actually die of carcinoma of the prostate is small, the number of patients with one of its symptomatic consequences is great. The prominent symptoms are anorexia, weight loss, anemia, pain (particularly due to bony metastasis) and urinary obstruction.

Latent adenocarcinoma of the prostate (microscopic foci of carcinoma found as an incidental finding following a prostatectomy) has not been demonstrated to be a progressive disease. Therefore, these patients are best followed without treatment. It is unlikely that more than 2-5% of the patients with latent carcinoma will ever demonstrate symptoms or evidence of metastasis.

Unfortunately only 5% of patients with clinically detectable carcinoma of the prostate will have the disease localized enough or be of an age to consider a radical prostatectomy. Therefore, most regimens of treatment are palliative only. The universal drug in this seemingly hormone dependent tumor, has been the Estrogens. This has often been combined with or-

chiectomy. Recent studies by Dr. Mellinger and his group in 14 Veterans Administration Hospitals should be mentioned.<sup>9, 10</sup> These studies in over 2,000 patients with carcinoma of the prostate were carefully controlled. Estrogens (Stilbestrol 5 mg.), when compared to a placebo, do reduce the carcinoma mortality and morbidity, but not without an even greater increase in deaths due to cardiovascular diseases. In simple terms, "there is a price to pay" when using Stilbestrol in its most usual dose of 5 mg. daily. The same study demonstrated that orchiectomy was no more effective than the placebo in increasing longevity.

Dr. Donald Gleason and others,<sup>11, 12, 13</sup> including the author (unpublished) have demonstrated that a histological grading, particularly when combined with clinical staging, is helpful in prognostication.

Prior to any treatment, carcinoma of the prostate must be proven by biopsy. Tissue can be obtained easily and effectively by a perineal needle biopsy. This technique has been recently well described and illustrated by Dr. Hoskins and Dr. Mellinger.<sup>14</sup> The biopsy must be obtained before Estrogen therapy, because of the marked changes it causes in the prostatic histology, making diagnosis difficult.

Once the diagnosis is established, the treatment is dependent on four factors: (1) the age and general health of the patient, (2) the clinical stage of the disease (Stage I is "latent" carcinoma, Stage II is localized to the prostate,

\* Presented at the Annual Meeting of the South Dakota Medical Association, Aberdeen, South Dakota, May 1968.



Stage III is with local extension, and Stage IV is with evidence of metastasis), (3) the presence of symptoms, and (4) the degree of histological differentiation.

As previously mentioned, observation is warranted for those with Stage I ("latent") carcinoma. Radical prostatectomy is to be considered for those patients with localized (Stage II) disease who are of an age and general status to expect **at least** 10 years of life. Probably this age limit would be 60-65 years of age. Such surgery invariably means impotency and a risk (10-20%) of urinary incontinence.

Estrogen (Stilbestrol 5 mg. daily) is indicated in patients with Stage IV disease (metastasis). It is indicated in patients with symptoms such as anorexia, weight loss, pain associated with metastasis, and ureteral obstruction. Prostatic obstruction of the urethra is best treated by transurethral resection. Estrogens should also be used in patients with carcinoma of undifferentiated histology. It is again emphasized that Estrogens do increase the risk of serious cardiovascular disease. Its use is to be guided by close follow-up and constant awareness of its side effects. Some of the side effects include: edema, congestive heart failure, painful gynecomastia, and acute cardiovascular diseases.

Orchiectomy is done for palliation. It is especially indicated in those patients who could be on estrogens, if it were not for an existing serious cardiovascular disease. It should also be considered in patients who have not responded to the Estrogens, or who appear to be refractive to the Estrogens.

The patient (Stage III) without symptomatic clinical disease and with well differentiated histology, should be observed. Palliation in this group should be reserved for reasons previously described. To inform a patient that he has a cancer and to withhold treatment, taxes the physician and the patient, yet at times this is the best management. One must keep the patient under close surveillance.

Cobalt therapy can give relief to localized disease, particularly when directed to vertebral metastasis causing radicular pain. Radioactive phosphorus is also effective for bony pain. Regardless of method or plan of treatment, periodic observation every 3 to 6 months is necessary. This should include weight, periodic hemoglobin, urinalysis, BUN, and KUB pelvis. A serum-acid-phosphatase with prostatic fraction is helpful in staging the disease. If the prostatic fraction is elevated, the patient is consid-

ered a Stage IV. Ureteral obstruction is a grave sign and very rarely deserves diversionary procedures.

**SUMMARY:** Carcinoma of the prostate is best treated only after full investigation, which should include the patients age and general status, stage of the disease, histological grade and the present symptoms. Radical prostatectomy applies to about 5% or less. Estrogens are an effective treatment, but also increase the risk of cardiovascular disease. If the patient is free of metastasis, and if he has a well differentiated carcinoma, it is best to observe him.

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## CLINICAL APPLICATIONS OF INHIBITION OF BETA-ADRENERGIC RECEPTORS WITH PROPRANOLOL\*

by

Morris Stampfer, M.D.\*\* and Stephen E. Epstein, M.D.<sup>1</sup>  
From the Cardiology Branch, National Heart Institute,  
Bethesda, Maryland

Propranolol, the first clinically useful beta-adrenergic blocking drug, was recently placed on the market after several years of exhaustive clinical trials. On the basis of many investigations, it appears that blockade of the beta-adrenergic receptors may be useful in the treatment of several types of cardiac problems. However, as with any potent drug, the physician must possess full knowledge of its mechanism of action and possible hazards before prescribing. This article is intended as a brief survey of the actions and uses of propranolol for the practicing physician.

### PHARMACOLOGY

The work of Dale, Ahlquist and others has established the existence of different types of responses to adrenergic stimulation, dependent on the presence of either of two types of receptor sites in the tissues. For example, stimulation of alpha adrenergic receptors causes constriction of blood vessels, while stimulation of beta

receptors causes vasodilation. Only beta receptors are located in the heart, and stimulation of these receptors results in an increase in the heart rate and the force of cardiac contraction. The endogenous catecholamines, epinephrine and norepinephrine, stimulate both alpha and beta receptors, while the catecholamine isoproterenol stimulates beta adrenergic receptor sites exclusively. Although alpha adrenergic blocking drugs have been known for many years, propranolol is the first generally available drug which antagonizes the action of catecholamines at the beta adrenergic receptor sites, thus causing slowing of the heart rate and a decrease in the force of cardiac contraction.

### CLINICAL USES

#### 1. Angina Pectoris

Angina pectoris is due to a disproportion between the  $O_2$  requirements of the myocardium and the  $O_2$  supply so that the supply of oxygen is inadequate to meet myocardial metabolic demands. In theory, angina can be relieved either by increasing oxygen delivery or decreasing metabolic requirements. Since both heart rate and the force of contraction are important in determining the amount of  $O_2$  required by the heart, propranolol, by decreasing these parameters during exercise, is often successful in relieving angina that is refractory to the more

\*Prepared by the South Dakota Heart Association for this Journal.

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commonly used drugs. The dose required is highly variable and is best ascertained by starting with a small dose such as 10 or 20 mg by mouth four times daily, and increasing gradually until attacks of angina are substantially reduced in frequency. Doses of 400 mg daily or more have occasionally been used, although the most commonly required dosage ranges from 120 to 240 mg daily. Very close observation of the patient is necessary since congestive failure may appear. Such symptoms may often be controlled with Digitalis glycosides and diuretic agents. However, if these interventions are not successful in controlling symptoms of failure, propranolol must be discontinued.

## 2. Arrhythmias

Propranolol can be used in the treatment of various cardiac arrhythmias; its beneficial effects are due not only to beta adrenergic blockade, but in certain arrhythmias to a quinidine-like action as well.

Propranolol may abolish arrhythmias caused by digitalis intoxication, including frequent premature ventricular contractions and ventricular tachycardia. It should be stressed, however, that there is no evidence that propranolol is superior to some of the other commonly used antiarrhythmic agents.

In arrhythmias not due to digitalis, such as atrial fibrillation or atrial flutter with rapid ventricular response, propranolol usually can be relied upon to slow the ventricular rate. Recurrent attacks of paroxysmal atrial tachycardia may occasionally be reduced in frequency or prevented by propranolol, although sufficient information to assess long-term results is not yet available.

When emergency treatment is required, propranolol should be given intravenously in doses of not more than 0.5 mg. every three to four minutes until the desired effect is achieved or signs or symptoms of worsening cardiac decompensation are noted. The drug should not be used in complete atrioventricular block with idioventricular rhythm (unless a cardiac pacemaker is in place) since electrical activity may be slowed further or arrested.

## 3. Idiopathic Hypertrophic Subaortic Stenosis

Propranolol has been found to be beneficial in many patients with idiopathic hypertrophic subaortic stenosis (IHSS). The exercise tolerance of patients, whose primary symptom is angina pectoris, has been improved by propa-

nolol, and the frequency of syncopal episodes and of arrhythmias can be reduced in other patients. The reason for this improvement probably is due to the fact that obstruction to left ventricular outflow in IHSS is made worse by drugs or maneuvers that increase the contractile state of the heart, such as isoproterenol or exercise. Propranolol, by decreasing sympathetic stimulation of the heart, decreases this obstruction. This change is less marked at rest, when there is normally little sympathetic stimulation present, but becomes more significant during exercise.

It should be stressed that in patients with IHSS and congestive failure, the drug may produce deleterious effects just as in patients with other types of heart disease who have signs and symptoms of cardiac failure.

## SIDE EFFECTS AND CONTRAINDICATIONS

By interfering with sympathetic stimulation to the heart, propranolol decreases the cardiac output response to exercise in normal subjects, and thereby impairs their capacity to perform intense exercise. This finding demonstrates the significant role of the sympathetic system in the cardiac response to the stress of exercise. Propranolol also alters the diurnal pattern of sodium excretion in normal subjects and in patients with mildly impaired cardiac function. However, in patients with severe cardiac decompensation its administration may cause frank retention of sodium and fluid, changes resulting in progressive edema accumulation and symptomatic deterioration. Thus, in patients with heart disease whose cardiac reserve is diminished and who depend upon sympathetic support to maintain compensation, inhibition of cardiac sympathetic stimulation may lead to severe and sometimes irreversible symptoms of cardiac failure.

Other major side effects that have been reported are severe hypoglycemic reactions occurring in patients taking insulin or oral hyperglycemic agents, and acute pulmonary insufficiency due to bronchospasm, a complication that may occur in patients with obstructive airway disease.

## SUMMARY

Blockade of the beta-adrenergic receptors is of significant benefit in selected patients with various types of heart disease. Angina pectoris, digitalis-induced arrhythmias, atrial fibrillation and flutter, and idiopathic hypertrophic subaortic stenosis are conditions in which this drug



may be useful. However, caution and continued close observation of the patient is always necessary because removal of sympathetic support to the failing heart may result in severe cardiac decompensation. Propranolol and other beta-adrenergic blocking drugs should not be administered to patients with congestive heart failure that does not respond to digitalis glycosides and diuretics, and to patients with atrioventricular block, unless a cardiac pacemaker is in place. In addition, they should be given with extreme caution to patients with obstructive airway disease and to patients taking insulin or oral hypoglycemic agents.

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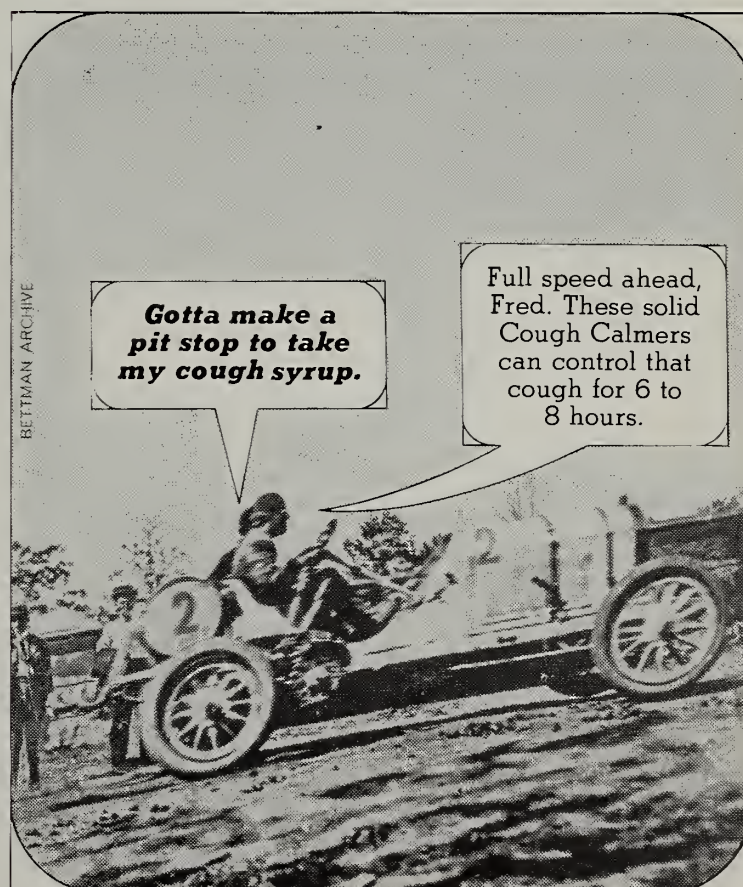


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# REPORT OF THE 20th AAGP ANNUAL CONVENTION

Las Vegas, Nevada, Sept. 14-19, 1968

A new Academy attendance record was written this week when 7,964 registrants, highest in the Academy's history, saw and participated in the AAGP 20th Annual Convention in Las Vegas. The 3,468 physicians registration of 1968, also exceeds all other previously established figures.

The new president-elect of the American Academy of General Practice is Dr. Edward J. Kowalewski of Akron, Pa. Dr. Theodore J. Nereim of Madison, Wisc., was elected vice president. The three new members of the Board of Directors are Dr. Robert E. Verdon of Cliffside Park, N. J.; Dr. A. Alan Fischer of Indianapolis, Ind.; and Dr. James L. Grove of Phoenix, Ariz. Re-elected to the post of speaker of the Congress of Delegates was Dr. William J. Haggood, Jr. of Clover, Va. Dr. James Price of Brush, Colo., was re-elected as vice speaker.

In a regular meeting of the Board of Trustees of the Family Health Foundation of America held during the Assembly a grant of \$40,000 was approved for the Family Health Care Program conducted under the direction of Dr. Joel J. Alpert at Harvard Medical School with a tentative commitment for a similar grant for three years. An application for a grant of \$3,600 for a senior clerkship in the home care and community health program at the University of Kansas School of Medicine was approved. An application for a grant of \$15,000 for the University of Texas Medical Branch at Galveston for a family practice teaching program was tentatively approved pending the appointment of a director.

In-house clinical seminars, an innovation for the 1968 Scientific Assembly, proved to be the meeting's outstanding feature according to Dr. Stanley Boyd, chairman of the 1968 Committee on Scientific Assembly. According to Dr. Boyd the 48 small sessions, all conducted at the Las Vegas Convention Center, were completely sold out during the first three days of the convention and only scattered openings were available on the final day after many members left the convention city to return to their practices.

Each clinical seminar was limited to a maximum enrollment of 12 in order to achieve in-depth discussions between the instructor and attending physicians. The faculty for the 48 sem-

inars, which were repeated each day at the Convention, was obtained from the University of Utah College of Medicine.

An over-riding consideration of the 1968 Congress of Delegates was its concern for the success of the pending application for a certifying board of family practice.

Delegates approved a Board of Directors report of progress made on the application for the American Board of Family Practice, approved the proposed Essentials for Residencies in Family Practice and rejected two resolutions which would have made other changes in graduate training standards for Academy members. Also referred for consideration following definitive action on the proposed certifying board were a number of amendments and a recommendation from the address of the president concerning establishment of a fellowship classification of membership for the Academy.

A resolution introduced by one state chapter delegation calling for the appointment of a committee of the Congress of Delegates to review administrative practices was opposed by four resolutions from other states. In his annual address to the Congress of Delegates, the president stated that the Board of Directors, with full responsibility over administrative personnel, had conducted an extensive inquiry during the past year and that in his opinion the conclusions of the Board would simply be duplicated by further inquiries.

The Congress reaffirmed its statement of policy on extending equal rights for Academy membership. The Congress adopted a resolution opposing cigarette advertising on commercial television and radio and tabled a resolution which would have prohibited the exhibition or distribution of tobacco products at the Academy's annual convention. The Delegates adopted a recommendation of the Reference Committee on Reports of Officers and Committees that preparations be made to increase the annual membership dues at the next session of the Congress of Delegates. It was noted that a dues increase is necessary to continue to operate the Academy at the same level of effectiveness.

(Continued on Page 49)





# CLINICOPATHOLOGICAL CONFERENCE

*From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Departments of Pathology of the Hospital and of the School of Medicine of the University of South Dakota*



JOHN F. BARLOW, M.D.\*  
*Pathologist-Editor*

JAMES R. FELKER, M.D.\*\*  
*Discussor*

## FIFTY YEAR OLD CAUCASIAN MAN WITH MUSCLE PAINS

### Case No. A-67-149

This 50-year old Caucasian pastor was admitted for muscle pains of three-four weeks duration. The patient was in excellent health until approximately one month prior to admission when he had the insidious onset of "muscle pains" in the extremities and chest and pain and aching in the dorsum of the feet. This was soon accompanied by a migratory polyarthralgia of the ankles, knees, shoulders and hips. Ten days prior to admission the patient developed a severe raspy cough productive of small amounts of mucoid clear sputum streaked with bright red blood. Physical findings were negative at this time. Outside laboratory work showed a white count of 6,800; a negative urinalysis and erythrocyte sedimentation rate of 33mm/hr. LE preps and latex test for rheumatoid arthritis were negative. Butazolidin, potassium iodide, tetracycline did not alleviate the symptoms. Aspirin offered some mild relief of pain. For several days prior to admission the cough had been increasing in severity and was associated with an abnormal chest film with evidence of bilateral nodular soft densities. Streptomycin and Erythromycin were of no benefit. Sputum culture revealed pneumococci, staph albus and alpha streptococci. The patient developed fever and skin and subcutaneous hemorrhages several days before admission. The patient did recall that six weeks prior to admission he had two irritated lesions of the right leg which may have

been tick bites. These had disappeared. He had had exposure to various insecticides. There was no significant past or family history. The patient had had a kidney stone removed several years previously.

Physical examination revealed a well-developed, well-nourished pleasant alert white male. P -90 and regular; R-20; B/P-140/80 bilaterally. There was a centripetal hemorrhagic skin eruption of the hands and feet. The lesions varied from petechial to several centimeters with apparent white centers. These centers appeared to be undergoing incipient necrosis. The eruption involved the gluteal cleft. There were no mucous membrane or conjunctival lesions. Examination of the head and neck was unremarkable. The neck was supple. The chest was clear to auscultation and percussion. The heart had a regular rhythm without murmurs. There were no abnormalities on abdominal or rectal examination. The extremities showed no objective signs of arthritis and revealed only the skin lesions described above.

Urinalysis - yellow, clear; specific gravity 1.027, pH 5.0; negative for glucose, Ketone bodies, and hemoglobin. Proteinuria was 1+. There were 5-7 wbc/HPF, 3-8 rbc/HPF, 1-4 coarsely granular casts/LPF, 1-3 hyalin casts/LPF. Hemoglobin was 11.4 gm%, red count 3.94 million, hematocrit 36%. Red cell indices and smear were within normal limits. Leukocyte count was 20,600 with 85% polymorphonuclear leukocytes, 8% bands and 7% lymphocytes. The erythrocyte sedimentation rate was 39 mm/hr. The serology was nonreactive. Total protein was 7.1 gm%, albumin was 3.7 gm%, alpha-1 globulin 0.3 gm%, alpha-2 globulin 0.8 gm%, beta

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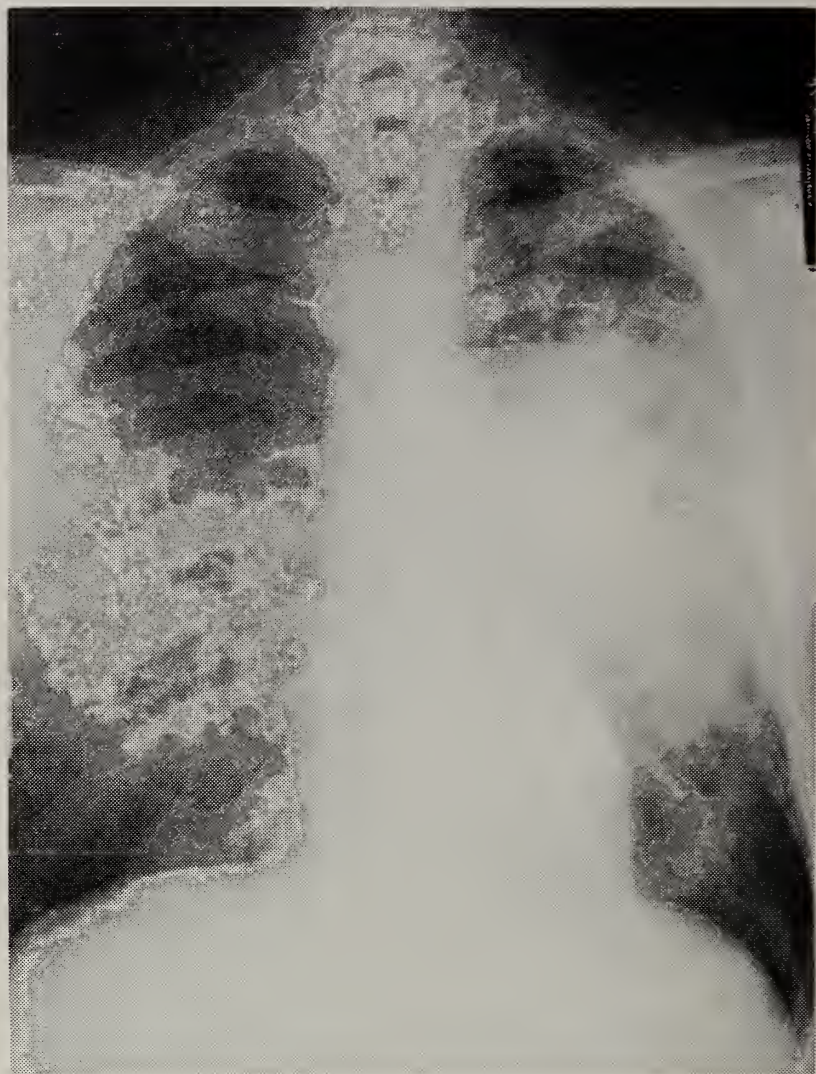
globulin 0.8 gm% and gamma globulin 1.5 gm% (all values within normal limits). BUN was 20 mg%. A bilirubin showed 0.5 mg% total with 0.2 mg% direct and 0.3 mg% indirect. Creatinine was 1.0 mg%. Multiple stools for occult blood and multiple blood cultures were negative. A direct and indirect coombs test was negative. Cultures and smears of sputum for tuberculosis were negative. Routine cultures of sputum showed *Candida albicans*. Partial thromboplastin time was within normal limits on two occasions. Platelet count was 238,000 and 495,000/mm.<sup>3</sup> C-reactive protein was negative and febrile agglutinins showed no titer to salmonella, brucella, tularemia or proteus OX19. The patient's course was characterized by severe hemoptysis which required transfusion. He had intermittent low grade fever. Chest films revealed a bilateral granular pulmonary consolidation in the perihilar regions. This progressed in subsequent films to patchy granular to confluent consolidation in a somewhat butterfly distribution. An intravenous pyelogram showed prostatic calcification and elevation of the bladder base suggesting prostatic enlargement. An upper gastrointestinal series and sinus films were normal. The patient was treated with steroids. Two diagnostic procedures were done and have been deleted from the protocol.

**Dr. Felker:** In summary, we have a 50-year old Caucasian pastor who developed a severe hemorrhagic skin eruption, fever, muscle and joint pains and a cough which was productive of copious quantities of blood. Of particular interest are the X-rays, the first film shows bilateral patchy hilar densities. A few days later these densities have increased and assumed a "butterfly" pattern. The lesion progressed to "fan-shaped" lesions with incipient cavitation particularly in the left upper lobe. Dr. McHardy, what do you think of these X-rays?

**Dr. Bryson McHardy\*:** Looking at the first film, there is a bilateral pulmonary consolidation in the perihilar region. This is somewhat granular in appearance. There are multiple possibilities here including a bilateral pneumonia. Following this there is a long list ranging from sarcoidosis to pulmonary alveolar proteinosis. Follow-up films do indeed show marked progression. The perihilar configuration is maintained but there is confluent consolidation. In view of the history of hemoptysis, this could represent secondary aspiration of blood. The heart size is normal. A third film shows even

more marked progression bilaterally, only the right upper lung field being spared. The first three sets of films were taken approximately four days apart. Ten days later, there does appear to be marked improvement in the lung picture. However, seven days after that, follow-up films show an increase of the infiltrates in both lower lung fields with some decrease in the area of the left hilum. Subsequent films did show a pneumothorax which I believe was secondary to a renal biopsy. The other X-rays are as mentioned in the protocol. (Fig. I & II).

Figure I.



Early film showing perihilar infiltrate.

**Dr. Felker:** Thank you, Dr. McHardy. I would like to start out the discussion by asking a few questions. First of all, where did the man live? Had he always lived in South Dakota or did he travel extensively?

**Dr. Rossing\*\*:** The patient was a native of South Dakota and became ill attending a pastoral convention in Chicago.

**Dr. Felker:** Was he in any way connected with farm work?

**Dr. Rossing:** He did gardening as a hobby and was exposed to the various insecticides in pursuing this pastime.

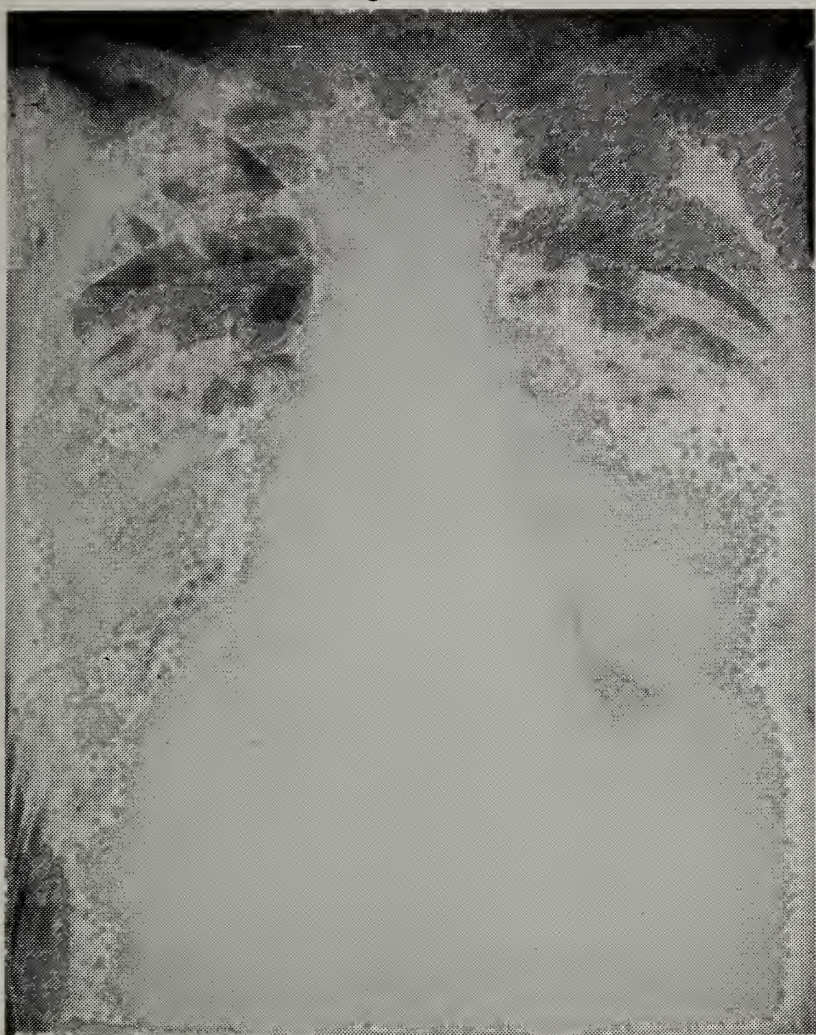
\*\*Internist, Sioux Valley Hospital, Clinical Staff, School of Medicine, University of South Dakota.

(Continued on Page 37)

\* Radiologist, Sioux Valley Hospital.



Figure II.



Later film showing marked progression.

**Dr. Felker:** I assumed that he never had any pulmonary difficulties or serious illnesses prior to this illness?

**Dr. Rossing:** That is correct.

**Dr. Felker:** Did he have any tender or nodular arteries — perhaps a tender temporal artery?

**Dr. Rossing:** No, he did not.

**Dr. Felker:** I note that the patient had intermittent fever. Of what nature was this?

**Dr. Rossing:** This was mostly a low-grade fever without spikes.

**Dr. Felker:** In the afternoon?

**Dr. Rossing:** Yes.

**Dr. Felker:** Was a urine culture done?

**Dr. Rossing:** No.

**Dr. Felker:** I gather from the protocol that the patient had no palpable organs or masses in the abdomen?

**Dr. Rossing:** That is correct.

**Dr. Felker:** The joint complaints were in the nature of arthralgias rather than true arthritis with swelling and redness?

**Dr. Rossing:** Yes.

**Dr. Felker:** Summary of the laboratory data shows a high white count with a shift-to-the-left and a high erythrocyte sedimentation rate. His urinalysis was abnormal in that the sediment contained red cells, white cells, and both coarsely granular and hyalin casts. There was

only 1+ proteinuria, however. Did the patient have skin tests for fungus and PPD for tuberculosis?

**Dr. Rossing:** No, but extensive culture work for both fungus and TB in the sputum were performed and were negative.

**Dr. Felker:** The patient also did not have enzymes such as SGOT, SGPT, and CPK. However, these may not have been necessary after the diagnostic procedures that were performed. He did have a total protein and electrophoresis which was surprisingly normal seeing how sick the patient was. Screening tests to evaluate the clotting mechanisms were within normal limits. The patient did grow candida albicans from the sputum. The diagnostic procedures done on this case were most likely a skin biopsy and kidney biopsy.

This represents an interesting case. The differential diagnosis here is between an infectious etiology and one of the diseases of the so-called collagen group. It states in the protocol that the man was bitten by a tick and although the patient was not in Colorado or in one of the Rocky Mountain states, Rocky Mountain Spotted Fever has been reported in all states except Maine and Vermont. The clinical course of the patient is not consistent with Rocky Mountain Spotted Fever as the patients are usually much sicker with fever up to 105 and 106 and subsequently develop a rash. A centripetal rash which starts on the hands and feet and comes inward is consistent with Rocky Mountain Spotted Fever. However, the severe pulmonary disease with hemoptysis is not at all characteristic of Rocky Mountain Spotted Fever and the Weil-Felix reaction is negative.

Another infectious disease which has to be seriously thought of is chronic meningococcemia. This is characterized by recurrent arthralgia or arthritis and hemorrhagic skin lesions. However, the skin lesions often come and go in crops and this man's lesions were rather static. Also, this man had a number of blood cultures which I am sure were placed under CO<sub>2</sub> incubation in the candle jar and on appropriate media. These were negative. The pathologist shakes his head so I assume that was done. I do feel it is important, however, to consider this diagnosis in anybody with hemorrhagic skin rash and arthralgia.

Another possibility is miliary tuberculosis. I have never seen hemorrhagic skin lesions in miliary tuberculosis and usually patients with miliary tuberculosis do not cough up blood. He did not have sufficient cavitation in his lungs



and the pulmonary course was I think too short for this to be miliary tuberculosis arising from chronic pulmonary tuberculosis. Although I have not seen hemorrhagic skin lesions in miliary tuberculosis, hypersensitive purpuric reactions have been reported. However, in general I feel that this man's clinical course does not fit that of miliary tuberculosis.

Disseminated fungus disease such as histoplasmosis should be mentioned but I do not think it is a very distinct possibility here.

In severe viral pneumonitis, you could get a clinical picture similar to this including the severe hemoptysis but the rest of the man's findings are not consistent with this type of illness.

I will now move onto the collagen or hypersensitivity group of diseases. Goodpasture's syndrome is a possibility here. He had severe lung disease with hemorrhage and he did have an abnormal urinalysis although only 1+ proteinuria. Skin lesions are not usually described with Goodpasture's syndrome. It would be interesting for me to know how the man died. If he died a death from progressive uremia, I certainly think a Goodpasture's syndrome is a distinct possibility.

I suppose I should mention idiopathic pulmonary hemosiderosis. This disease usually occurs under the age of 15 and is characterized by severe hemoptysis and pulmonary bleeding with anemia. There is usually hepatosplenomegaly which is not present and there are usually no skin lesions. I seriously doubt that diagnosis. Was the patient's sputum examined for the presence of hemosiderin-laden macrophages?

**Dr. Rossing:** No.

**Dr. Barlow:** I might say here that the presence of hemosiderin-laden macrophages simply means bleeding into the pulmonary tree. This, of course, can come from many diseases. Probably the most common of which is congestive heart failure. The finding of hemosiderin-laden macrophages is certainly not diagnostic of pulmonary hemosiderosis.

**Dr. Felker:** Dermatomyositis is certainly an unlikely possibility here because in that disease it is mainly skin and muscle involvement and the skin involvement is not of a hemorrhagic nature usually. Sarcoidosis can involve the skin and lungs. However, in order to have purpuric lesions with sarcoidosis I would think he would have to have thrombocytopenia usually with an accompanying pancytopenia. The skin lesions described in sarcoid are usually raised granu-

lomatous lesions and not similar to those described here. The pulmonary picture with the bilateral hilar lesions is certainly consistent with sarcoidosis and you can get almost any X-ray picture in sarcoidosis. However, the skin lesions are not typical and the patient is a northern Caucasian instead of a southern Negro. Therefore, I think that sarcoidosis is not a good possibility here.

I am going to mention polymyalgia rheumatica. The patient had muscle and joint pain and was 50 years old. He did not have tender temporal arteries. This patient did not have the characteristic course of polymyalgia rheumatica with muscle and joint aches which gradually improved with time. The disease usually lasts two to five years. Also, skin lesions are rare in polymyalgia rheumatica.

Lupus erythematosus is always a possibility. The skin lesions and the severe pulmonary disease are a little unusual. However, lupus is a great mimicker and unfortunately can do almost anything.

The last possibility is periarteritis nodosa. I feel that this is what the patient has. The muscle and joint pain without true arthritis, the skin rash, the severe pulmonary difficulties and the trouble the patient has with his renal mechanisms are all consistent with a vasculitis. The patient could have died by several mechanisms. *Candida albicans* is mentioned as having been grown from the sputum. Patients who are on steroids or high doses of antibiotics and who are critically ill can develop disseminated visceral disease from *Candida albicans*. Another possibility is that the patient died from progressive renal deterioration. I also thought that the heart was slightly enlarged on the final X-ray film and this may be an indication of progressive heart failure.

**Dr. Felker's Diagnosis:**

1. Periarteritis Nodosa
  - A. Renal failure
  - B. *Candida Albicans* Infection
2. Possible Lupus erythematosus
3. Possible miliary tuberculosis

**Dr. Ortmeier\*:** Pulmonary embolism seems to be a very common disease in this hospital and I suppose anywhere. Could this patient have been having multiple pulmonary emboli as the cause of his demise?

**Dr. Rossing:** I suppose that would have been a possibility, but I did not consider it too strongly after the biopsies that were performed.

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\* General practitioner — Sioux Valley Hospital.



**Dr. Monson\*:** Do you feel that *Candida albicans* in the sputum is really significant?

**Dr. Felker:** I think that any patient who is on steroids and antibiotics can develop a systemic infection due to *Candida albicans*. However, I have no way of proving this without a biopsy.

**Dr. Barlow:** Systemic infections due to *Candida albicans* are reported in the patients that Dr. Felker mentioned. However, as has been pointed out, laboratory diagnosis is extremely difficult. This is because *Candida albicans* is part of the normal flora of both the upper respiratory tract and the gastrointestinal tract. Therefore, the organism has to be grown out multiple times as a predominating organism before you can really seriously suspect *Candida albicans* as a cause of systemic disease. The only real way of diagnosing a pulmonary lesion due to this is either a transtracheal aspiration or a lung puncture which circumvents the inevitable possibility of contamination of the sputum specimen with the normal flora of the upper respiratory tract. A similar situation exists in the stool.

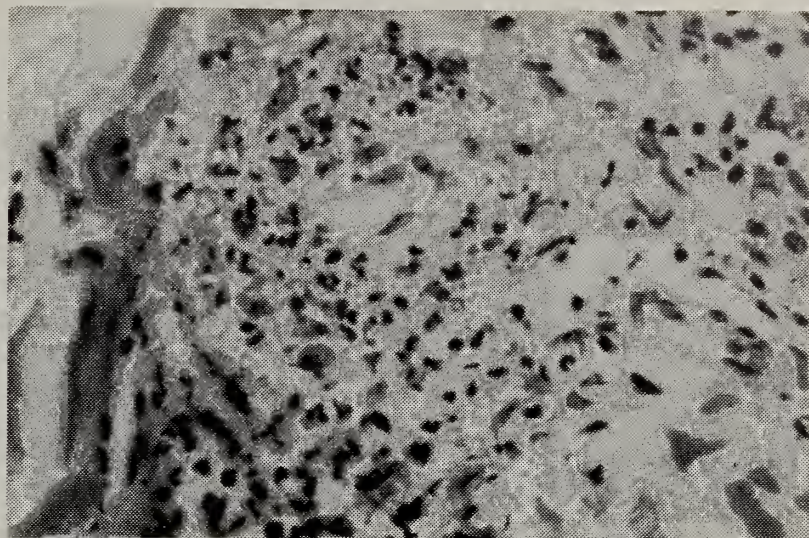
#### **PATHOLOGIC DISCUSSION**

**Dr. Barlow:** I am not sure I can accurately fit this case into one of the described entities without some difficulties except that it falls into the hypersensitivity or collagen group of diseases. As Dr. Felker correctly surmised, the two diagnostic procedures performed were a skin and kidney biopsy. The first photomicrograph shows a small blood vessel in the skin (Fig. III). There is extensive necrosis with intense acute inflammation. All the vessels involved in this case were small and all show the same process without healing. No large vessels, aneurysms or infarcts are apparent. This slide shows a similar picture. The renal biopsy shows a focal necrotizing glomerulitis (Fig. IV). The above histologic picture could easily fit anaphylactoid or Henoch-Schoelein purpura. This disease is usually seen in children and is associated with a good prognosis. There is a vascular purpura similar to this case as well as joint pains. Abdominal pain and gastrointestinal bleeding are complications. The patient completely recovers unless there is severe renal disease. The renal biopsy in cases of recovery appears very similar to the above case. However, the fatal outcome and severe lung involvement make anaphylactoid purpura unlikely.

Involvement of small blood vessels of a disseminated nature, a fulminating course and extensive involvement of lungs and necrotizing

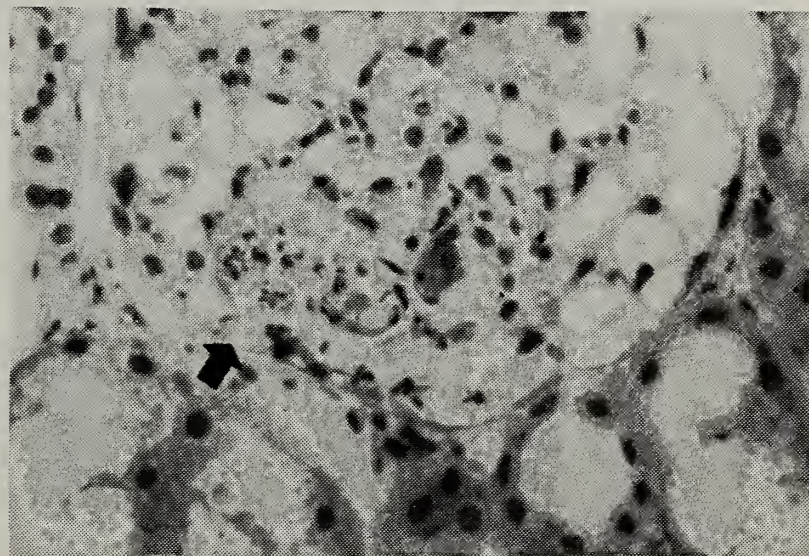
\*Intern, Sioux Valley Hospital.

**Figure III.**



Acute vasculitis of small blood vessel.

**Figure IV.**



Arrow points to focal necrosis in glomerulus.

glomerulonephritis have been described by Pearl Zeek as hypersensitivity angiitis and by others as microscopic polyarteritis nodosa. In Zeek's cases the patients all had a fulminating course. Dr. Rossing, what was the clinical course of this man?

**Dr. Rossing:** The patient was treated with high doses of steroids with some initial success. However, when the dose was reduced, the patient's pulmonary condition deteriorated and he eventually died a pulmonary death.

**Dr. Felker:** How was the renal status terminally?

**Dr. Rossing:** He did not develop uremia. In fact, his renal function was good up to the end.

**Dr. Barlow:** This course certainly fits hypersensitivity angiitis. I might add at this point that the histologic pictures of the skin biopsy could represent an infectious angiitis. Meningococcemia could give this picture. Pseudomonas also has an ability to involve vessels producing an arteritis. An embolus from an acute endocarditis due to staphylococcus or streptococcus could also produce such a lesion. How-



ever, all of these are ruled out by multiple negative blood cultures. I make this point to demonstrate that acute necrotizing vasculitis is a descriptive term and can be due to infection or hypersensitivity. The true etiology of the process can only be determined by clinical correlation and other laboratory tests.

At autopsy the most significant and extensive changes were in the lungs. Grossly the lungs were totally consolidated. The total weight was 2300 gms. The first picture shows the extensive fibrous and fibrinous adhesions (Fig. V). The cut section shows a homogenous red firm surface somewhat similar grossly to lobar pneumonia (Fig. V). In other areas necrosis and cavitation was present with secondary pulmonary thrombi without vasculitis. Microscopically, there was extensive chronic pneumonitis with fibrosis and alveolar lining cell hyperplasia. No definite vasculitis or granuloma formation was found in the lung (Fig. VI). Organizing thrombi and areas of pulmonary necrosis were seen. The skin and kidneys were similar to previous biopsy specimens. There was only focal glomerulitis in the kidney and certainly not enough to cause renal failure. Other significant findings included mild mediocystic change in one section of aorta but without dissection. No vasculitis was found in other organs.

The pulmonary picture brings up the point as to what the etiology was. We might satisfy ourselves by suggesting that it is on an allergic basis. Certainly it was not a pure vasculitis with secondary changes. We know that allergic reactions do occur in the lungs secondary to drugs and other agents. In fact, many have attributed idiopathic interstitial pulmonary fibrosis (Hammann Rich disease) to a hypersensitivity phenomenon. Pulmonary fibrosis is also seen in association with other entities such as scleroderma and rheumatoid arthritis which are thought to be on an allergic basis. Many sections of this case are very similar to that seen in idiopathic pulmonary fibrosis. However, extensive hemorrhage and areas of necrosis are present in this case and are not seen in idiopathic pulmonary fibrosis.

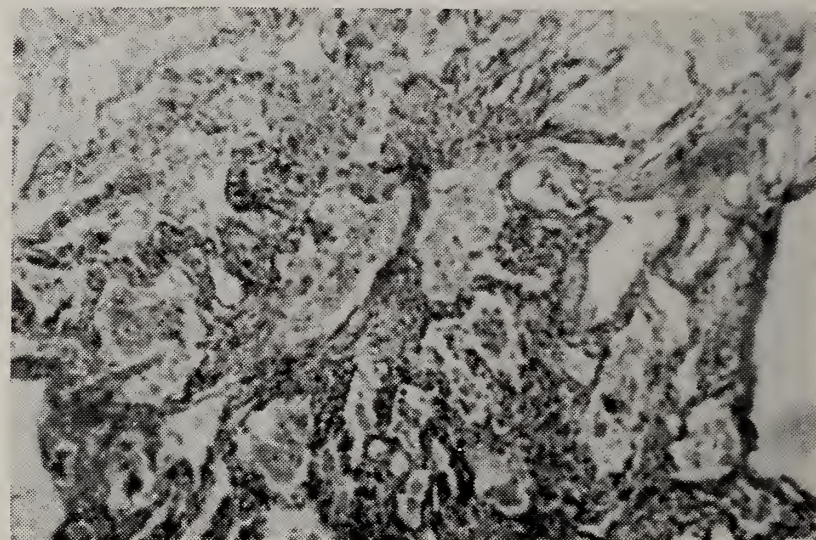
Goodpasture's syndrome has been well discussed by Dr. Felker. The disease is characterized by severe pulmonary hemorrhage and necrotizing alveolitis or pulmonary fibrosis. However, a rapidly progressive glomerulonephritis soon develops and the patient usually expires in a few months or within two or three years. The pulmonary changes which are non-

Figure V.



Totally consolidated lung.

Figure VI.



Marked alveolar wall thickening and alveolar lining cell hyperplasia.

specific were present in this case, but the progressive renal disease was not.

**Dr. Monson:** Do you not see this lung picture in a lot of nephritics?

**Dr. Barlow:** Yes. This is an important point. Pulmonary congestion, edema and hemorrhage are common in any advanced renal disease. To be a true Goodpasture's syndrome, the pulmonary changes must precede the renal disease.

Perhaps we should discuss a few other entities. One is Wegener's granulomatosis. This disease is characterized by 1) pansinusitis; 2) generalized vasculitis; 3) necrotizing glomerulitis; 4) large pulmonary granulomas. Certainly the first and last of these was not present here.

Another entity was that described by Churg and Strauss as allergic granulomatosis. These patients had asthma, eosinophilia, generalized vasculitis and pulmonary granulomas.

In summary, we can say that this patient had a hypersensitivity syndrome which does not really fit into any definite syndrome, but most closely fits hypersensitivity angiitis as described by Zeek.



**FINAL ANATOMIC DIAGNOSIS:**

- 1. Periarteritis nodosa (hypersensitivity angiitis) involving skin and kidney.
- 2. Pulmonary hemorrhage and fibrosis severe.
- 3. Pulmonary thrombi (emboli).
- 4. Pulmonary infarction.

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## TABLETS

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citrate with aspirin)



## IN BRIEF.

**Contraindications:** History of sensitivity or severe intolerance to aspirin, meprobamate or ethoheptazine citrate.

**Warnings:** **USE IN PREGNANCY:** Safety for use during pregnancy or lactation has not been established; therefore, it should be used in pregnant patients or women of child-bearing age only when the physician judges its use essential to the patient's welfare.

**Precautions:** Keep out of reach of children. Not recommended for patients 12 years old or less. Carefully supervise dose and amounts prescribed, especially for patients prone to overdose themselves. Excessive prolonged use of meprobamate in susceptible persons—as alcoholics, ex-addicts, severe psychoneurotics—has resulted in dependence or habituation. Withdraw gradually after prolonged excessive dosage to avoid possibly severe withdrawal reactions including epileptiform seizures. Warn patients of possible reduced alcohol tolerance, with resultant slowed reactions and impaired judgment and coordination. If drowsiness, ataxia or visual disturbances (impairment of accommodation and visual acuity) occur, reduce dose. If symptoms persist, patients should not operate machinery or drive. After meprobamate overdose, prompt sleep, reduction of blood pressure, pulse and respiratory rates to basal levels, and hyperventilation are reported. Give cautiously and in small amounts to patients with suicidal tendencies. Treat attempted suicide (has resulted in coma, shock, vasomotor and respiratory collapse and anuria) with gastric lavage and appropriate symptomatic therapy (CNS stimulants and pressor amines as indicated). Two instances of accidental or intentional significant overdosage with ethoheptazine and aspirin have been reported. These were accompanied by CNS depression (drowsiness and lightheadedness) but resulted in uneventful recovery. On basis of pharmacologic data, CNS stimulation could be anticipated, with nausea, vomiting and salicylate intoxication (requires induced vomiting or gastric lavage, specific parenteral electrolyte therapy for ketoacidosis and dehydration, and observation for hypoprothrombinemic hemorrhage [usually requires whole blood transfusions]).

**Adverse Reactions:** Ethoheptazine and aspirin may cause nausea with or without vomiting and epigastric distress, in a small percentage of patients. Dizziness is rare at recommended dosage. Meprobamate may cause drowsiness, ataxia and rarely allergic or idiosyncratic reactions. These reactions, sometimes severe, can develop in patients receiving only 1 to 4 doses. Such patients may have had no previous contact with meprobamate and may or may not have an allergic history. Mild reactions are characterized by urticarial or erythematous maculopapular rash. Acute nonthrombocytopenic purpura with cutaneous petechiae, ecchymoses, peripheral edema and fever have been reported. If allergic reaction occurs, discontinue meprobamate; do not reinstitute. Severe reactions, observed very rarely, include fever, fainting spells, angioneurotic edema, bronchial spasms, hypotensive crises (1 fatal case), anaphylaxis, stomatitis and proctitis (1 case) and hyperthermia. These cases should be treated symptomatically including, when indicated, such medication as epinephrine, antihistamine and possibly hydrocortisone. A few cases of leukopenia, usually transient, have been reported on continuous use. Rarely, aplastic anemia (1 fatal case), thrombocytopenic purpura, agranulocytosis, and hemolytic anemia have been reported, almost always in presence of known toxic agents.

**Overdosage:** See precautions section for management of overdosage.

**Composition:** 150 mg. meprobamate, 75 mg. ethoheptazine citrate and 250 mg. aspirin per tablet.

Wyeth Laboratories Philadelphia, Pa.

Photo professionally posed.





## DT

E. H. Heinrichs, M.D.

When, after chronic abuse, alcohol is withdrawn several symptom complexes can be expected. These are more or less serious, some endanger the health of the patient critically, but all should receive medical attention. Even today these symptoms are managed occasionally by administration of alcohol. Such management is not only deleterious to the patient's health but has no logical foundation. It can only be compared with a Fire Department which upon arrival at a fire, tried to douse the flames with gasoline, reasoning that if there is nothing to burn there will be no fire.

Most commonly the patient who stops drinking has one or all of the following symptoms:<sup>1</sup> alcoholic shakes, withdrawal seizures, alcoholic psychosis and delirium tremens (DT).\*

The alcoholic shakes are the first symptoms to appear, as a rule within the first 24 hours after the patient has stopped drinking alcohol. It is marked by trembling, gross tremors, agitation, hyperactivity, nausea, inability to sleep or to relax, fright, guilt feelings, anger, overt hostility in denying the need for drink, pallor, faintness when upright, facial flushing, tongue coating and blood shot eyes. The experienced physician will recognize the symptoms even when not fully developed, but when full-blown the diagnosis is apparent even to a lay person. The early recognition is crucial because if not treated, the patient may progress to more serious stages of the disease and his health may be endangered unnecessarily. It is of utmost import-

ance to instruct about this symptomatology, those officials who usually deal with the chronic alcoholic, namely police officers and jail wardens in order that patients receive medical attention early enough.

Withdrawal seizures are grand-mal-type convulsions most likely to appear after 24 hours of abstinence and during the ensuing two weeks. The true alcoholic seizure patient is rare. He has no prior history of seizures and exhibits these only during the withdrawal period. The alcoholic epileptic patient, however, has seizures also without ethanol consumption but appears to have a lower convulsive threshold in the withdrawal period.

Alcoholic psychosis refers to auditory and visual perceptions, even though any other sense can be involved. The expressions range from bad dreams and nightmares up to "snakes and rats," "white mice" and "black spiders," but very rarely the proverbial "pink elephants" are seen. Misinterpretations of sensory stimuli enhance hallucinations of any sort, a quiet evenly lighted room is therefore advised. Some of the patients are so frightened that they become a danger to others and to themselves. Reassurance in a soothing quiet voice and if possible general care by the same nursing personnel is extremely helpful. The hallucinatory state lasts usually only a few days and rarely extends for weeks.

Delirium tremens refers specifically to the acute confusional state marked by increased motor activity or irritability, tachycardia, fever, insomnia, complemented by hallucinations, seizures and profuse perspiration. Without treatment the mortality is reported between 15-25%,

\* The reference to "DT's" (in plural) is poor Latin. One patient can have only one delirium tremens at the time, and the correct plural in Latin would be "deliria trementes."



which places such patients in the same danger for life as myocardial infarctions. With proper management now only 2-3% of the patients with DT die. The unstable and psychopathic person, the young and the mentally deficient are prone to delirious reactions of a wild and impulsive type.<sup>2</sup> Death has been attributed to physical prostration, cardiovascular collapse (shock) and overwhelming infection (sepsis).

Any patient who exhibits alcohol withdrawal symptoms should as a rule be admitted to the hospital because he may go on to develop a full-blown fulminating delirium tremens. There is no schematic treatment regimen for the therapy of alcohol withdrawal symptoms and the proposed treatment plan (see addendum) must be altered according to the individual patient. However, certain principles should be followed:

a.) The room should not show light contrasts and should be equipped with high security measures, preventing suicide and escape. No glasses, knives or other dangerous instruments should be in reach. Posey-Restraints should be used, in the beginning on all four extremities. Leather restraints may be necessary in strong and very agitated patients.

b.) Tranquilizers such as Chlorpromazine HCl, Promazine, Meprobamate, Chlordiazepoxide HCl should be used to sedate the patient heavily and geared according to the patient's excitation state. A recent double-blind study of the Veterans Administration indicates that Chlordiazepoxide HCl is the drug of choice in the prevention of DT and convulsions.<sup>3</sup>

c.) Generous oral fluid intake should be provided for, even though most of the patients are overhydrated upon admission. Intravenous administration of fluid is not necessary and probably dangerous.<sup>4</sup> Later a high carbohydrate diet is desirable.

d.) Night sedation should consist of long acting barbiturates, antihistamines as Diphenhydramine and Promethazine HCl. Methypylon and Glutethimide are effective but carry the risk of psychologic addiction or dependency. The formerly so popular Chloral hydrate has been abandoned because alcohol will enhance its sedative effect ("Mickey Finn"). A similar synergistic action has been reported between Methypylon and alcohol, especially beer and champagne, but not whisky.<sup>5</sup>

e.) Anticonvulsants should be given, since many alcoholics are also epileptics or with-

drawal seizures are to be expected. Phenobarbital and Diphenylhydantoin are commonly used.

f.) Multivitamins and especially Thiamine, Pyridoxine and Vitamin B<sub>12</sub> should be given in generous doses, because of liver damage and anticipated high carbohydrate intake. The DT, however, appears not to be a Thiamine deficiency syndrome.<sup>6</sup>

g.) General nursing care and general measures (as laxatives) should be used as necessary. Magnesium preparations are preferred because the chronic alcoholic has a low magnesium blood level and by increasing this electrolyte level it may have a sedative effect. Antibiotics are indicated if evidence of infection is present.

h.) Initial laboratory tests should include: complete blood count, hematocrit reading, urine analysis, determination of blood urea, nitrogen serum sodium, potassium, chloride, carbon dioxide and if possible ammonia, magnesium and liver function tests.

i.) Special measures, but not generally accepted are: hypothermia, especially if the temperature elevation cannot be controlled<sup>1</sup>; Coenzyme A and Metronidazole have advocates<sup>1</sup>; Corticosteroids have been reported of value on an empirical base.<sup>2</sup>

After the acute withdrawal symptoms are overcome and the patient can be moved, it is advisable to refer him to a specialized alcoholism treatment center (in South Dakota the State Hospital in Yankton and the VA-Hospital in Fort Meade). Even though the critical phase is over, the patient can exhibit lasting effects from his chronic alcoholism as they are: gastritis, hepatic portal (Laennec's) cirrhosis, cardiovascular disorders (rarely as a primary complication), skin manifestations, peripheral neuropathies (especially "Saturday-night-palsies"), pathologic intoxications, Wernicke's syndrome (acute hemorrhagic polioencephalitis superior), Korsakov's psychosis (confabulatory amnesic syndrome with or without polyneuritis), Nicotinic acid (Niacinamide deficiency) encephalopathy, toxic (shunt) encephalopathy, alcoholic personality deterioration, Marchiafava's syndrome (callosal demyelinating encephalopathy), paranoid disorders, alcoholic hallucinosis, jealousy reactions and probably many more.

A final word of caution: The results of treating alcoholism with LSD have not at all been convincing. In view of the general and genetic dangers of this hallucinatory drug even a thera-

(Continued on Page 49)





## A CALL FOR ACTION HAS BEEN MADE

G. W. Knabe, Jr., M.D.

That the shortage of physicians in South Dakota has reached alarming proportions and that as a result, health care, especially in rural areas, is not adequate to meet the needs is widely accepted. There is no unanimity of opinion, however, on how best to analyze the problem and go about solving it. Many of our state's agencies and professional associations are involved in various aspects of medical care, and from these groups have come various recommendations over the years. Even so, no single body has as yet been charged with making a comprehensive analysis of the over-all situation in South Dakota.

The most recent official statement on the subject was made by the Committee on Health and Welfare of the Legislative Research Council, which considered as a main subject for study the shortage of physicians in South Dakota. The Committee's recommendations of September 12, 1968 were reprinted in the November issue of the South Dakota Journal of Medicine. In these considerable emphasis was given to the needs of the School of Medicine; an indication of the high degree of awareness of the Medical School's importance in the health care picture. The Committee's first recommendation stated:

"The Committee on Health and Welfare recognizes and is deeply concerned about the immediate need to commit substantially increased financial assistance to The University of South Dakota Medical School and, therefore, strongly urges and recommends that the President of The University of South Dakota, the South Dakota Board of Regents, The State Budget Board and the 1969 Legislature, through its Appropriations Committee, give this need the greatest consideration and provide the necessary budget recommendations and funding to strengthen and improve the medical school program."

Other important recommendations included the following: That the Medical School and the

University review the development of new programs for the education and training of paramedical personnel capable of providing emergency services in rural areas lacking physicians. That the Medical School, in cooperation with the State Medical Association, attempt to encourage and develop incentives for medical students to enter into the generalized as well as the specialized practice of medicine. That the Medical School carefully examine and keep pace with national trends in curriculum development and the evolving concepts of medical education so as to assure and secure a sound program. That the Medical School, in conjunction with the State Medical Association, review existing standards and policies relating to admission to the Medical School to insure that the greatest interests of the state and the individual applicants are protected and that, if necessary and desirable upon the consideration of all factors, appropriate changes be made. That the 1969 Legislature enact a scholarship loan program for resident students studying to become medical or osteopathic physicians and that the loan contain provisions of forgiveness of repayment for persons who return to South Dakota to practice their professions. That smaller communities of the state, in need of physicians, take local initiative, including the possibility of subsidizing medical students, particularly local young people, at the internship and residency level of their training as a possible means of attracting them.

The Committee also recommended that the South Dakota Board of Regents include in its budget a request for funds sufficient to undertake a comprehensive study of all the ways and means of providing a four-year medical education to South Dakota resident students and that



it report its findings to the South Dakota Legislature with its recommendations for action. It was further recommended that the Medical School and budgetary authorities give consideration to including in the budget request of the Medical School, funds sufficient to provide consultant services to review both the short- and long-term requirements of the school to meet the health education and health care needs of the state.

Additional recommendations were: That the 1969 LRC Executive Board authorize a comprehensive study of ambulance services, including utilization of helicopters and other transportation facilities, as well as the training of personnel. That no changes be made to the existing basic sciences and medical licensure statutes of the state which would in any way be detrimental to their underlying policies and the general welfare. That Congress be petitioned by legislative resolution to provide increased attention to the needs of medical education as they relate to the national shortage of physicians.

The Legislative Research Council Committee on Health and Welfare has clearly identified key areas requiring immediate attention. The members of the Committee are to be commended for their dedication and effort in developing these recommendations, and we are confident that the 1969 Legislature will give them the attention they deserve. The overriding recommendation is that there be substantially increased financial support for the current operation and immediate future development of the Medical School. And, we would add, there is great need for a better means of identifying and administering the budget so as to permit more effective management and planning and a better accounting of Medical School operations to the public. That greater financial support is necessary is agreed with by the University administration, the Commissioner of Higher Education and the Board of Regents. Also, outside consultants, including representatives of accrediting agencies, have repeatedly cited financial needs among the many problems which face the school.

Another recommendation with which there is general agreement is that there be a study of immediate and long-term needs of the Medical School. We agree that such a study, conducted by experienced consultants in medical education and public health, would be invaluable in assessing present resources of the school and developing specific recommendations for action. We would hope, however, that a decision to con-

duct such a study would not result in a delay of several years before any action is taken. The adverse effect of this on the school could be irreparable.

With respect to keeping pace with national trends in curriculum changes, there is no question but that this must be done. The Association of American Medical Colleges, at its November 4, 1968 annual meeting, adopted as policy a proposal that there be sweeping changes in curricula. It called for medical schools to "actively revise the content and methods used in the total span of the education of the physician so that his professional competence will be most relevant to meeting the changing health needs of the people." Medical schools have been asked to individualize their curricula to fit students' achievement rates, various educational backgrounds and different career goals. Curricular change is already widespread. In May 1968, twenty schools reported a new curriculum in operation and sixty-seven schools had one in the planning stage. Unfortunately, ten schools (including South Dakota) noted that severe financial problems precluded planning for any major development or alteration in curriculum.

The recommendations of the Committee on Health and Welfare point up the key role which the state's medical school has in producing the variety and number of physicians and allied health workers needed to provide for the health care of our citizens. The health of South Dakotans is also the principal concern of the State Medical Association. Thus, by reason of their missions the Medical School and the Medical Association are in a partnership for health. The South Dakota State Medical Association has long recognized its responsibilities in this partnership, and has given strong support to the school over the years. Its concern was demonstrated this past year when on May 19, 1968 a resolution was passed by the House of Delegates which urged that those responsible for and concerned with the administration and financial support of the School of Medicine take prompt and appropriate action to provide for its present operations and future development.

A call for action has been made by an important committee of our Legislature charged with investigating the shortage of physicians. Moreover, this committee has asked the Medical Association and the Medical School to work together to implement certain of its major recommendations. We will do our best to respond to these specific requests, as we are trying to respond to the many other public de-



mands for action in the health field. Hopefully, in doing this an even stronger and more effective working relationship can be forged between the Medical School and the physicians of the state. This is essential if we are both to carry out what is perhaps our most important mission. This is to provide the guidance which is now greatly needed in developing a new and better health care system for South Dakota. As we accept the additional responsibilities for developing a better health care system, we are confident that the citizens of South Dakota whom we seek to serve will, through their legislative representation, accept their responsibility to provide the School of Medicine with the resources necessary for it to play its proper role in accomplishing this mission.

George W. Knabe, Jr., M.D.  
Dean, School of Medicine  
Vermillion, South Dakota

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Upon recommendation of the Reference Committee on Constitution and Bylaws, the delegates adopted a recommendation that the Commission on Education allow postgraduate study credit for the valuable training received by physicians during their tours of duty in the Volunteer Physician Program, and rejected a resolution which would have exempted them from postgraduate training requirements.

The Public Relations Committee was commended by the Congress for its stepped-up program of public relations during the past year and delegates also approved the Reference Committee on Public Policy's suggestion that similar workshops be planned for the future.

Attending the meeting from South Dakota were Dr. A. P. Reding of Marion, and Dr. E. T. Lietzke of Beresford, who served as delegates from the South Dakota chapter.

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peutic attempt is not justified at present, unless one would advise the aforementioned Fire Department to put out a fire in a residential district with TNT.

**Addendum**

- The initial management of a patient with DT:7
1. Admit to high-security room with suicide and escape precautions.
  2. Bedrest with Posey-restraints on all four extremities. Leather restraints if necessary.
  3. Detention-tray, especially no glasses or knives.

4. Thorazine 100 mg. i.m. stat.
5. Thorazine 50 mg. i.m. q. 4 hours thereafter p.r.n. in order to keep patient quiet.
6. Librium 50 mg. q. 6 hrs. orally.
7. Enforce an intake of 2,000 cc. (2 quarts) milk and 2,000 cc. (2 quarts) juice in the first 24 hours if possible.
8. Keep intake record.
9. Benadryl 50 mg.-capsules; 2 capsules q.h.s.
10. Tuinal 100 mg. (gr. 1½) orally q.h.s., repeat the same 3 hours later p.r.n.
11. Convulsion precautions.
12. Phenobarbital 30 mg. (gr. ½) orally q. 6 hours for 5 days.
13. Dilantin 100 mg. (gr. 1½) orally q. 6 hours for 5 days.
14. Hydoxin 50 mg. orally t.i.d.
15. Thiamine hydrochloride 100 mg., i.m., o.d. for 3 days.
16. alphaRedisol 1000 mcg. (1 cc.) i.m., one dose only.
17. Unicap Capsules 2 capsules orally t.i.d. for 5 days.
18. Haley's M.O. 2 tablespoons o.d.
19. Temp., B.P., P., R., q. 4 hours.
20. Bathroom privileges with assistance when not restrained.
21. Upon admission: complete blood count, urine analysis, blood urea nitrogen, serum electrolytes (Na+, K+, Cl-, CO2-). If available: serum ammonia and serum magnesium. As necessary: liver function tests.

**Generic and Trade Names of Drugs**

Chlorpromazine HC1	Thorazine
Promazine	Sparine
Meprobamate	Equanil, Miltown
Chlordiazepoxide HC1	Librium
Diphenhydramine HC1	Benadryl
Promethazine HC1	Phenergan
Methyprylon	Noludar
Glutethimide	Doriden
Diphenylhydantoin	Dilantin
Thiamine	Vitamin B <sub>1</sub> : Betalin S
Pyridoxine	Vitamin B <sub>6</sub> : Hydoxin
Hydroxocobalamin	Vitamin B <sub>12</sub> : alphaRedisol, Rubicrest Betalin 12, Ducobec 1000
Metronidazole	Flagyl
LSD	Lysergic acid diethylamide
TNT	Tri-nitro-toluene

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**Geigy**



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# MEDICAL ASSOCIATION

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News Notes • Changes • Births • News

---

## Pop's Proverb

Maturity changes one's sense of values, age evaluates it.

Mr. Jesse Olson, Yankton, one of the four lay members of the Blue Shield Board of Directors, passed away on Wednesday, November 13, 1968. Mr. Olson had been a member of the Blue Shield Board of Directors for five years and had taken an active interest in both Blue Shield and the medical profession in South Dakota.

\* \* \*

A two day seminar on trauma and shock was held at Augustana College in Sioux Falls. Speakers at the seminar included **Robert E. Nelson, M.D.**; **Robert Van Demark, M.D.**; **B. J. Begley, M.D.** and **Bill Church, M.D.**, all of Sioux Falls.

The South Dakota Obstetrics and Gynecology Society and the South Dakota Academy of General Practice sponsored a one day seminar in Sioux Falls with **Milton Mutch, M.D.** as moderator.

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The Blue Shield District 10 meeting was held in Omaha, Nebraska this past November. Representing South Dakota were **Dr. B. F. King**, President, South Dakota Blue Shield, **Dr. Paul Hohm**, Chairman of the District 10 Plans and **Dr. T. H. Sattler**, Vice President of South Dakota Blue Shield. Also in attendance were Richard Erickson, Plan Director and Randy Tuffs, Assistant Director.

\* \* \*

A series of immunization clinics, including immunization for diphtheria, tetanus, smallpox and polio, were held in Day County under the direction of **L. W. Keller, M.D.**, Webster, county health officer.

\* \* \*

**Robert Van Demark, M.D.**, Sioux Falls, spoke at a meeting of the Centerville PTA and showed the film "Horizons Unlimited."



**A. P. Reding, M.D.**, Marion, South Dakota, was elected president-elect of the North Central Medical Conference at the meeting held in St. Paul in November. Dr. Reding, active in the North Central Medical Conference for many years, will assume the office of president in November, 1969.

\* \* \*

A phonocardio-simulator was donated to the Medical School in Vermillion by **N. J. Sundet, M.D.**, Kadoka, and the South Dakota Heart Association.

\* \* \*

At the annual meeting of the Brookings County unit of the American Cancer Society **Robert Shaskey, M.D.** was elected to head the committee on professional education.

\* \* \*

**B. T. Otey, M.D.** and **Werner Klar, M.D.**, both of Flandreau, donated an electronic vibrator to the Flandreau High School for use in the athletic department.

\* \* \*

Two high school groups and one adult group in Madison heard **Donald Frost, M.D.**, Sioux Falls, speak on problems of courtship, sex, alcoholism, parental authority, curfews, smoking, narcotics and social disease.

**B. O. Lindbloom, M.D.**, Pierre, has been named to the Board of Directors of the River Park Center, a recovery and treatment center for women alcoholics in South Dakota.

\* \* \*

Mrs. **George McIntosh**, Eureka, attended the North Central Regional workshop in St. Louis, an event sponsored by the American Medical Association Auxiliary.

\* \* \*

First and second grade students in Clark County were offered immunizations for diphtheria, tetanus, smallpox and polio at an immunization clinic under the direction of **Abner Willen, M.D.**, county health officer.

\* \* \*

**E. H. Collins, M.D.**, Gettysburg, attended a one week post graduate course in medicine and surgery at the Mayo Clinic.

\* \* \*

The Commerce and Community Club, the Kiwanis Club and the Milbank Clinic sponsored an open house celebrating the 38th year of practice in Milbank of **D. A. Gregory, M.D.** Among the guests were **Will Donahoe, M.D.**, Sioux Falls, and **John C. Hagin, M.D.**, Miller, both former partners with Dr. Gregory.

Members of the Emery PTA heard **Dennis Epp, M.D.**, Freeman, speak on "Contagious Diseases."

\* \* \*

The Redfield extension homemakers club members heard **M. E. Sanders, M.D.** speak on "New Medical Developments" at a special interest lesson.

\* \* \*

**N. J. Sundet, M.D.**, Kadoka, was honored at the annual Memorial Hospital Program and Dance in Kadoka for his thirty years of service to that community.

\* \* \*

Redfield, Yankton and Custer observed Diabetes Week by offering free diabetic tests to their citizens.

\* \* \*

**Barry T. Pitt-Hart, M.D.**, Sioux Falls, recently passed his board examinations in Anatomic and Clinical Pathology and is now a Diplomate of the American Board of Pathology. **James A. Rud, M.D.**, a former resident in pathology at Sioux Valley Hospital in Sioux Falls, has also passed his board examinations and is practicing in El Dorado, Arkansas. **Delwin K. Ohrt, M.D.** and **W. Allen Boade, M.D.** are currently in pathology residency training at Sioux Valley Hospital.



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Organized 1882

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Sioux Falls, South Dakota 57104

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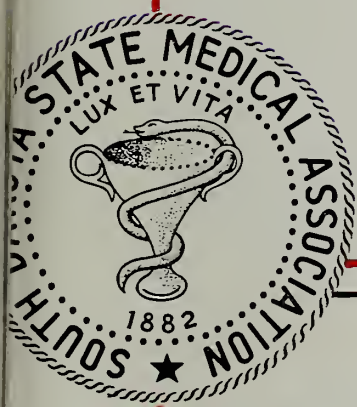
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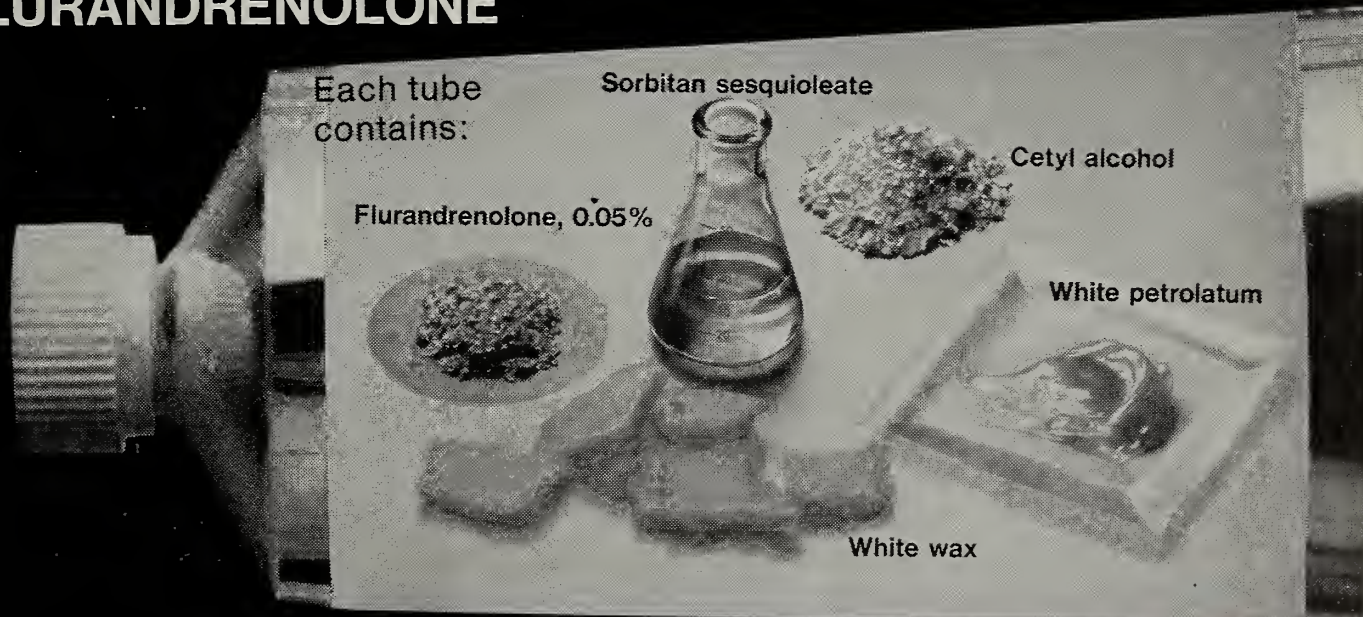
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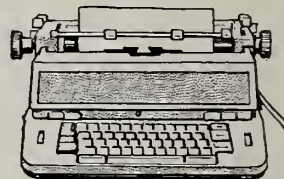
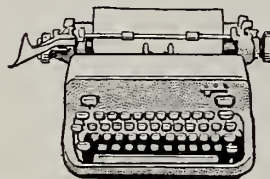
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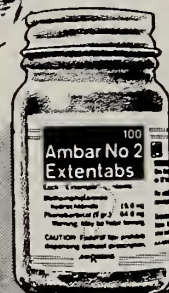
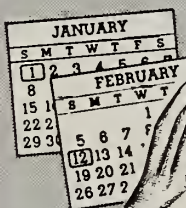


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Volume XXII

February, 1969

Number 2

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## THE CURRENT STATUS OF ACUTE RHEUMATIC FEVER\*

Leslie L. Kelminson, M.D.\*\*

### Epidemiology of Streptococcal Disease

During the past two decades there has been a profound decrease in the incidence of first and recurrent attacks of acute rheumatic fever. This has been associated with a significant change in the epidemiology of group A beta-hemolytic streptococcal disease. Thus, although the incidence of isolated streptococcal infections is still high, the virulence of the streptococcus in terms of its capacity to produce acute rheumatic fever in the "isolated" untreated patient has markedly decreased.

It is now fairly well established that only certain streptococci are rheumatogenic, that is, capable of causing rheumatic fever in susceptible patients. This rheumatogenic capability is not related to a specific type, as is true in acute glomerulonephritis. Rather, it seems to be related to the presence and amount of the M protein antigen and the presence and the amount of hyaluronic acid in the capsule of the organism. Both substances confer upon the streptococcus the properties of marked resistance to phagocytosis. This in turn permits the organism to persist in the throat of the untreated patient for a prolonged period of time (at least 21 days) and to cause a significant immune response in the patient (manifested by a significant

rise in the ASO-titer). These two factors, the prolonged persistence of the organism in the untreated patient, and the stimulation of a significant rise in the ASO-titer appear to be directly related to the attack rate of acute rheumatic fever. The amount of M protein antigen and hyaluronic acid contained within the organism increases markedly during epidemics, as does the incidence of acute rheumatic fever.

### Pathogenesis

Despite the well established relationship between the group A beta-hemolytic streptococcus and acute rheumatic fever, the pathogenesis of the disease is still not completely known.

In the late 1950's, Mortimer and associates suggested that the valve damage that occurs in acute rheumatic fever was actually due to the direct invasion of the valve and myocardium with streptococcal organisms.<sup>2</sup> Accordingly, they treated patients in Chili, South America, with up to 80 million units of penicillin per day for prolonged periods of time. Their results were inconclusive and, since then, this theory has been mostly dismissed as a significant possibility.

At the present time, most authorities believe that an aberrant immune mechanism stimulated by products of the group A streptococcus is involved in the pathogenesis of acute rheumatic fever.<sup>3</sup> A good deal of evidence supporting this theory has come from immunopathologic observations. Auricular appendage biopsy specimens from patients with rheumatic heart disease have exhibited the presence of

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bound gamma globulin in variable degree.<sup>4</sup> This gamma globulin is distributed throughout the myocardium with primary involvement of the sarcolemma, the sheath of the cardiac muscle fiber, the subsarcolemma-sarcoplasm and the walls of the blood vessels. Patients who have died of acute rheumatic fever and congestive heart failure have had extensive deposits of bound gamma globulin in the myocardium, especially in the sarcolemma and subsarcolemma sites.<sup>5</sup> In addition, serum from patients with rheumatic fever or rheumatic heart disease when tested against normal heart tissue sections by immuno-fluorescent techniques have frequently shown re-activity with constituents localized to sarcolemma or subsarcolemma sites.<sup>6</sup> Because of this, it is theorized that the deposition of gamma globulin in the wall of the heart is due to fixation of circulating auto-antibodies to constituents of the sarcolemma and to the blood vessel wall. It is further theorized that the group A beta-hemolytic streptococcus possesses an antigen which is immunologically cross reactive with human heart tissue. Exposure to this antigen during strep infection in certain individuals then would result in the formation of antibodies which are cross reactive with the heart tissue of these patients. There is some evidence supporting this hypothesis. Kaplan has observed that rabbits immunized with group A beta-hemolytic streptococcal cells develop antibodies which are reactive to human heart tissue.<sup>4</sup> Furthermore, he has demonstrated that antibodies to human heart tissue exhibited a reaction with streptococcal antigen. Finally, he has shown that this cross reactive antibody occurs in the serum of approximately 60% of patients with rheumatic heart disease and inactive rheumatic fever.<sup>4</sup> He has also theorized that since this antibody is also an autoantibody, its production may be stimulated by continuous release of endogenous antigen. This might then be the cause of the progressive valvular damage that occurs in certain patients in the absence of evidence of persistent acute rheumatic fever.

#### Diagnosis

Although the incidence of acute rheumatic fever has decreased over the past twenty years, the disease is still a very important one for those physicians who have responsibility for the care of children and adolescents. Unfortunately, a specific diagnostic test such as the LE cell test for lupus erythematosus has not as yet been developed. Accordingly, the diagnosis of acute rheumatic fever still must be made purely on clinical grounds. The physician who makes the

diagnosis of acute rheumatic fever, assumes a grave responsibility in view of the intensive treatment program usually employed during the acute phase, the institution of a prolonged prophylactic antibiotic program and the psychological implications of this diagnosis. Unfortunately, many errors are being made in the diagnosis of this disease. The errors are usually in the direction of over-diagnosis rather than under-diagnosis. To help minimize errors, T. Duckett Jones, in 1944 published criteria for the guidance in the diagnosis of acute rheumatic fever. These criteria were subsequently modified on two occasions to include the following:

#### **Jones Criteria (Revised) for Guidance in the Diagnosis of Rheumatic Fever<sup>7</sup>**

##### **MAJOR MANIFESTATIONS**

Carditis polyarthritides; chorea; erythema marginatum; subcutaneous nodules

##### **MINOR MANIFESTATIONS**

Clinical:

Previous rheumatic fever or rheumatic heart disease; arthralgia, fever

Laboratory:

Acute phase reactions: erythrocyte sedimentation rate; C-reactive protein; leukocytosis  
Prolonged P-R interval

##### **PLUS**

Supporting Evidence of Preceding Streptococcal Infection

Increased ASO or other streptococcal antibodies; positive throat culture for group A streptococcus; recent scarlet fever.

The presence of two major criteria, or of one major and two minor criteria, indicates a high probability of the presence of rheumatic fever if supported by evidence of a preceding streptococcal infection. The absence of the latter should make the diagnosis doubtful, except in situations in which rheumatic fever is first discovered after a long latent period from the antecedent infection (e.g., Sydenham's chorea or low-grade carditis).

Although one might miss a very mild case of acute rheumatic fever, it is recommended that the diagnosis of acute rheumatic fever be limited to those patients whose symptoms and signs satisfy the Jones Criteria. One of the major sources of error in over-diagnosis is represented by the patient who presents with a fever, pharyngitis, and an innocent heart murmur brought out by the fever and resultant increased cardiac output. The criteria for the diagnosis of carditis in acute rheumatic fever include the following:



### Criteria for Diagnosis of Carditis

#### I. Significant new murmur.

A. Murmur of aortic insufficiency — short, decrescendo, diastolic murmur at 3rd ICS, LSB.

B. Murmur of mitral insufficiency — holosystolic murmur at apex.

C. Mid-diastolic murmur at apex.

#### II. Pericarditis — pericardial friction rub or evidence of pericardial effusion.

#### III. Evidence of congestive heart failure.

#### IV. Evidence of a progressively enlarging heart.

Unless one of the above criteria are met, the diagnosis of carditis cannot be made.

In view of the fact that innocent heart murmurs are so common, and are so easily misinterpreted, the general characteristics and types of innocent heart murmurs that are found so commonly in the pediatric age group, are listed:

#### Innocent Heart Murmurs:

##### General Characteristics

1. Usually soft — no more than grade II/VI in intensity.
2. Localized to specific areas of the precordium with poor transmission.
3. Almost never heard in the back.
4. Systolic in timing except for venous hum.
5. Usually of short duration occupying less than  $\frac{1}{2}$  of systole and not interfering with the intensity and quality of the heart sounds.
6. Changes in quality and/or intensity with changes in position and respiration, usually heard better in the recumbent position and during expiration.

#### Innocent Heart Murmur:

##### Types

1. Short vibratory grade I-II/VI systolic murmur best heard at the lower left sternal border. Most common in young children.
2. Blowing, ejection type grade II/VI systolic murmur at the pulmonic area — common in older children and adolescents, especially those with thin chest wall.
3. Ejection type, slightly rough, grade II/VI, systolic murmur heard in first and second intercostal space, left sternal border with radiation into the suprasternal notch and along carotids common in athletic adolescent boys.
4. Venous hum, in sitting position, grade II/VI, medium pitched, slightly humming systolic/diastolic murmur, easily oc-

cluded by digital pressure over the jugular vein; diastolic component disappears in the recumbent position.

### Management

#### Steroids Versus Salicylates

In 1949, Hench and his associates demonstrated that ACTH and cortisone were of substantial value in the treatment of patients with rheumatoid arthritis and other hypersensitivity states. Since then there has been considerable controversy concerning the effectiveness of the steroids in the treatment of acute rheumatic fever, especially with regard to the prevention of residual valvular damage. This controversy, at least in part, has been related to the fact that many studies were not adequately controlled and to the grouping together of patients presenting with significantly different manifestations of acute rheumatic fever.<sup>9</sup>

In the very sick patient with pancarditis and congestive heart failure, there is almost universal agreement today that steroids are of great benefit if not lifesaving. Since steroids have been used, the early death rate from acute rheumatic fever has been dramatically reduced. Congestive heart failure is often controlled without the administration of digitalis, and the general well being of the patient usually rapidly improves.<sup>10-11</sup>

However, there is considerable controversy concerning the value of steroids in preventing **residual cardiac damage** in patients with heart failure and in patients who present with carditis but are not in heart failure and generally are not very ill. Most of the carefully controlled studies, including the Cooperative Study between the United Kingdom, Canada, and the United States and the Combined Rheumatic Fever Study Group, demonstrated that steroids were not superior to salicylates in the prevention of residual cardiac damage.<sup>12-13</sup> Thus, at the University of Colorado Medical Center at the present time, the policy is not to place patients on steroids even though carditis may be present unless there is evidence of pancarditis and heart failure.

For patients with acute rheumatic fever without carditis there is no justification for the use of steroids. Salicylates have been found to be essentially as effective as steroids in suppressing the acute inflammatory reaction within the joints and permanent damage of the joints does not occur as a sequelae to acute rheumatic fever.

#### Ambulation

Until relatively recently, patients with acute rheumatic fever with or without carditis were



placed in bed for periods of time ranging from several months to several years. Patients who are toxic with painful joints, congestive heart failure, or pericarditis certainly should be kept in bed. However, following the institution of anti-inflammatory drugs, rapid improvement frequently occurs so that prolonged strict bed rest is unnecessary. There is no magical time when activities should be started. Patients with active carditis should not be called upon to unnecessarily increase their cardiac output. However, sitting them in a chair to watch television might be more restful than having them restlessly toss and turn in bed. When signs of cardiac involvement have stabilized, they should be permitted progressively increasing activity. Patients without carditis should be ambulated much more rapidly.

### Prognosis

The long term follow-up studies of Feinstein and associates have provided considerable information concerning the prognosis of the patient with acute rheumatic fever.<sup>14</sup> Residual and irreversible damage occurs only in the heart; involvement of the joints, skin, brain, etc., which might be severe during the acute stage of the illness, is only temporary. Whether a patient is left with residual cardiac damage is dependent upon the presence and severity of cardiac involvement during the initial attack. If the heart is not affected during the first attack, cardiac involvement in subsequent episodes of acute rheumatic fever occurs only in approximately 20% of patients. If carditis had been present during the initial attack, the risk of residual rheumatic heart disease seems to be dependent upon two factors. One, the severity of the carditis; two, the presence of joint involvement. It is of interest that, in patients with mild carditis, involvement of the joints appears to have a "protective effect" on the heart. Thus, Feinstein's study demonstrated that in patients with mild carditis, the incidence of residual valvular damage was about 40% when joint involvement was also present, but was nearly 75% when no joints were involved. Furthermore, it seemed that the patient who had joint involvement was less likely to develop severe carditis during the initial episode. Finally, there were indications that the more severe the joint involvement, the better the ultimate prognosis. The point was made, however, that the "protective effect" of joint involvement is significant only in patients with mild carditis. When severe carditis is present, the occurrence of residual

valvular damage is the same whether arthritis or arthralgia is present or absent.

The concept that the presence or absence of residual cardiac damage is dependent upon the severity of the cardiac involvement during the first attack was also brought out by the Co-operative Study.<sup>12</sup>

In the United States, most children with residual cardiac damage usually survive well into adulthood in an excellent state of cardiac compensation. However, on occasion, either because very extensive cardiac damage is present right from the onset or, because of recurrences of carditis, progressive deterioration in the cardiac status occurs and operative intervention including valve replacement is required during the adolescent years.

### Prevention

Although the pathogenesis of acute rheumatic fever is still incompletely known, it is an accepted fact that there is an association of this disease with a recent infection with group A beta-hemolytic streptococci. If then, acute rheumatic fever is always preceded by a clinical or subclinical infection with the beta-hemolytic streptococcus, eradication and prevention of infection with the organism should essentially protect the individual from developing an attack or recurrence of the disease. Indeed, with the advent of chemotherapeutic agents, there has been a striking decrease in the recurrence rate.

Several studies have been performed to determine which chemotherapeutic agent is most effective in the prevention of beta-hemolytic streptococcus infections. Massel compared a large number of children who received various oral penicillin products with those receiving monthly intramuscular injections of benzathine penicillin.<sup>15</sup> Although all of the oral drugs were effective, the benzathine penicillin was more effective in reducing the incidence of clinical and subclinical infections with beta-hemolytic streptococci than the oral penicillin products. Wood, Feinstein, and associates compared the prophylactic effect of two daily oral agents, penicillin and sulfadiazine, against the effect of monthly intramuscular injections of benzathine penicillin.<sup>16</sup> They reached the following conclusions: (1) parenteral benzathine penicillin was more effective in the prevention of streptococcal infections and recurrence of rheumatic fever than either oral penicillin or oral sulfa. (2) oral penicillin and sulfadiazine were equally effective or ineffective in preventing streptococcal infections. (3) oral penicillin was not superior to



oral sulfadiazine in preventing recurrence of rheumatic fever. The major difference between the effectiveness of intramuscular benzathine penicillin over the oral preparations was the fact that the patients receiving the parenteral drug at the clinic were more faithful to the program than the patients taking the oral drugs on their own. However, when they compared those patients who were faithful to the oral program with the intramuscular group, it still was evident that the patients receiving the parenteral drug had a slightly lower incidence of recurrent streptococcal infection and recurrence of acute rheumatic fever.

Nevertheless, because of the severe pain associated with the injection of benzathine penicillin, oral therapy is still recommended by most authorities.

How long prophylaxis should be maintained has not been established. Certainly it should be continued throughout childhood and adolescence, during which time the incidence of streptococcal infections is highest. It is presently recommended that in patients without residual cardiac damage, prophylaxis should be discontinued at about age 20. If cardiac disease is present, prophylaxis should be continued indefinitely.

All patients with active rheumatic fever or with streptococcal infection regardless of a past history of rheumatic fever, should be treated with therapeutic doses of penicillin. Neither sulfadiazine nor any sulfa product is effective in eradication of an established infection. The earlier in the course of a streptococcal infection penicillin treatment is given, the less likely rheumatic fever will occur. However, even if penicillin is started as late as nine days after the onset of a sore throat, the incidence of rheumatic fever will be significantly lower than if no treatment is given.

### Summary

(1) There has been a significant change in the natural history of acute rheumatic fever, such that there has been a profound decrease in the incidence of initial and recurrent attacks of acute rheumatic fever. This change, in all probability, is related to the change in the epidemiology of group A beta-hemolytic streptococcal disease which in turn is related to the widespread use of penicillin. (2) Although the pathogenesis of acute rheumatic fever is still incompletely known, there is substantial evidence now to suggest that auto-immune mechanisms are at work in the etiology of this disease.

(3) The diagnosis of acute rheumatic fever still must be made purely on clinical grounds. It is highly recommended that the diagnosis be restricted to illnesses which meet the Jones criteria. (4) In the critically ill patient with rheumatic pancarditis and congestive heart failure, steroids are of significant value and might be lifesaving. (5) For patients with rheumatic carditis who are not critically ill, there seems to be no superiority of steroids over salicylates in the prevention of residual cardiac damage. (6) The long term risk of residual cardiac damage seems to be related to the severity of the carditis during the initial episode. Furthermore, involvement of the joints during the initial episode seems to have some protective effect. (7) Since the institution of prolonged chemotherapeutic prophylaxis there has been a marked decrease in the incidence of recurrence of rheumatic fever. Monthly intramuscular benzathine penicillin seems to be slightly more effective than oral penicillin or sulfadiazine.

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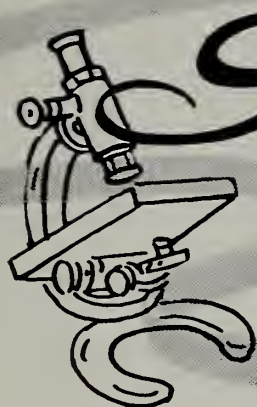
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# Scientific

# PAPER

## DRUGS: REACTIONS AND INTERACTIONS\*

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There are three main types of interactions of drugs employed in the practice of medicine that affect disposition of drugs and therefore alter the magnitude and the duration of response.

First, a **change in physiological status** produced by one drug can affect the metabolism of another drug. An example of this is a respiratory depressant drug, such as a narcotic, administered soon after a surgical procedure. Inhalation anesthetics require adequate pulmonary ventilation to be eliminated from the body. The narcotic drug depresses the alveolar ventilation and thus the removal of a general inhalation anesthetic is impeded.

Secondly, a drug can **alter metabolism** in such a way as to change the disposition of another drug. There are many examples of this. A major one is the effect of pH on the activity of a drug. It is known for instance that the active form of certain central nervous system depressants exists in the plasma in the unionized state. If the pH of the blood changes, the amount of active form of the drug changes and therefore alters its duration and magnitude of response. Another example of metabolic alteration is the prolonged response of narcotics and barbiturates in the presence of ganglionic blocking agents. The effect of these vasodilators is not a direct additive effect to the depressants, but rather that they produced such vasodilation to cause heat loss, the body temperature falls and thus metabolism of the depressant drug decreases.

Finally, **competition** can result in variations of drug response and disposition. One drug, for example nalline, can displace another drug, morphine, at an effector site. This would, in effect, produce an antagonistic response. An opposite response will occur when two drugs have a similar effect at the same time and the net effect is additive. An example of this is the use of muscle relaxants with ether anesthesia. Ether is capable of producing moderate muscle relaxation. When curare-like drugs are used simultaneously, the net effect is greater than when the muscle relaxant is used with other types of general anesthetics.

In these days wherein the handling of complicated disease states may require an element of polypharmacy, it is increasingly important that the practitioner recognize the subtle but profound relationships between the drugs that he uses.

The enzymes of the body act as the catalysts for the many chemical reactions involved in the metabolic functions. The **mitochondrial enzymes** are primarily related to chemical processes of oxidative or energy-liberating metabolism such as the Krebs' Cycle and have little or nothing to do with the metabolism of foreign particles. The metabolism of these latter substances, e.g. drugs, is regulated by **microsomal enzymes** located primarily in the liver.

In general, the duration and intensity of action of a drug is determined by the speed at which it is metabolized in the body. This rate of metabolism is governed by enzymes in the

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liver microsomes and these liver microsomes can be influenced by diet, nutritional factors, hormonal changes in the body, and the ingestion of foreign substances.<sup>1</sup> This enzyme activity is markedly increased in the presence of various hormones, drugs, insecticides, and carcinogens. This elevation in enzyme activity is called **"enzyme induction."** The clinical implications of enzyme induction are considerable and it can be safely predicted that the medical literature will be marked with reports on the effect of one drug on another. Enzyme induction is a situation where drug A increases activity of the enzymes that are responsible for the breakdown of drug B. Thus, if drug A and drug B are given simultaneously, drug B has a profoundly shorter duration and decreased effect because drug A has increased the metabolism of drug B. Interestingly drug A and drug B may be totally unrelated both chemically and in function. More than 200 drugs, insecticides, carcinogens and other chemicals are known to stimulate the activity of liver enzymes. Although the characteristic pharmacological actions of all these compounds are extremely diverse, the central nervous system depressants are more frequently associated with enzyme induction. The classical enzyme inducer is phenobarbital<sup>2</sup> but other barbiturates, as well as glutethimide<sup>3</sup> (Doriden), methypylone<sup>4</sup> (Noludar), phenothiazine derivatives,<sup>3</sup> meprobamate,<sup>3</sup> chlorthalidone (Librium),<sup>5</sup> and anticonvulsants<sup>4</sup> are also active. There is recent evidence to show that food preservatives<sup>6</sup> and dyes<sup>7</sup> can also cause enzyme induction.

It becomes obvious that adding or subtracting a drug can have serious consequences and reports of fatalities are starting to ease into the medical literature. Anticoagulant therapy has been incriminated since phenobarbital stimulates the metabolism of bishydroxycoumarin (Dicumarol).<sup>8</sup> Thus when a patient, treated chronically with 75 mgm. of bishydroxycoumarin per day, was given 75 mgm. of phenobarbital per day for 4 weeks in addition to the bishydroxycoumarin, there was a substantial drop in the anticoagulation (and thus the prothrombin time). Upon discontinuing the phenobarbital the prothrombin time returned to the higher levels. In 49 adult hospitalized patients, the administration of 30 mgm. of phenobarbital three times daily decreased the anticoagulant response to bishydroxycoumarin.<sup>10</sup> Phenobarbital significantly increased the dosage of bishydroxycoumarin required for anticoagulant maintenance in 8 patients with a history of

ischemic heart disease, and when the phenobarbital was withdrawn, the dosage of bishydroxycoumarin required for adequate therapy decreased.<sup>11</sup> If the attending physician were not to have recognized the drop in prothrombin time being related to the simultaneous administration of phenobarbital and increase the dose of bishydroxycoumarin a possible complication can certainly be anticipated. Recently, a fatal hemorrhage was reported<sup>9</sup> in a patient who received chloral hydrate and bishydroxycoumarin in the treatment of a myocardial infarction. The chloral hydrate was stopped and continuation of the bishydroxycoumarin resulted in a marked rise in prothrombin time and the consequent hemorrhage. These experiences indicate that combined therapy with a stimulator of drug metabolism can be hazardous when the enzyme inducer is withdrawn and therapy with the anticoagulant is continued without appropriate adjustments in dosage.

Phenobarbital and related drugs are reported to stimulate the metabolism of several other drugs in man. It increases the metabolism of aminopyrine derivatives and butazolidin.<sup>12</sup> Phenobarbital is also implicated in increasing the metabolism of diphenylhydantoin (Dilantin) in epileptic patients,<sup>13</sup> and accelerating the metabolism of digitoxin to digoxin.<sup>14</sup> It can be demonstrated that many of the inhalation general anesthetics also increase liver enzyme activity and are therefore capable of similar relationships to other drugs.<sup>15</sup>

It is an interesting corollary that chronic administration of these drugs speed up their own metabolism. Patients tolerant to glutethimide (Doriden) metabolize the drug more rapidly than normal persons.<sup>16</sup> Similarly, development of tolerance to barbiturates is due in part to their increasing the activity of their own microsomal enzyme system thus reducing the duration and magnitude of their action. Chronic administration of meprobamate increases the metabolism of meprobamate.<sup>17</sup>

These interactions are not limited to drugs alone and it will be interesting to watch the medical reports concerning the effect of drug enzyme induction on normal body substrates such as steroids, thyroxine, sympathomimetic amines and others. The role of sex hormones (including antifertility medications) in regulating the metabolism of drugs and the effect of the sex hormones on the action of drugs has yet to be worked out. It has been demonstrated in animals that drug action is frequently greater in the female than in the male.<sup>18</sup> This increase



in drug duration and activity can be reversed by administering testosterone to the females.<sup>19</sup> Conversely, administering Enovid (combination of norethynodrel and mestranol) to males inhibited the metabolism of certain drugs and thus intensified their action.<sup>20</sup>

Enzyme induction is not necessarily disastrous and as such can be used therapeutically. It has been demonstrated that phenobarbital stimulates bilirubin metabolism and this has been utilized clinically in the treatment of congenital nonhemolytic jaundice with associated hyperbilirubinemia.<sup>4</sup> There are reports of infants placed on 15 mgm. phenobarbital 2 to 3 times daily with subsequent lowering of the bilirubin concentration and disappearance of the jaundice. When the treatment was stopped the bilirubin concentrations rose to their original levels, jaundice reappeared, and restitution of the barbiturate therapy once again reversed the condition. It is interesting to speculate whether the treatment of certain pregnant women with barbiturates during the final two or three weeks of pregnancy would enhance the breakdown and disposition of drugs and bilirubin in the newborn.

Certain drugs can accelerate the metabolism of cortisol and thus decrease its activity. Accordingly, a decrease in the urinary excretion of 17-hydroxycorticoids may not reflect decreased adrenal activity but in fact be related to increased enzymatic breakdown, induced by the simultaneous administration of an unrelated drug. The clinical implications of this could be considerable.

Other observations suggest that the stimulation of liver microsomal enzymes may have therapeutic value in diseases characterized by over-production of steroid hormones. Diphenylhydantoin (Dilantin) has been demonstrated to produce biochemical and clinical remission of symptoms of nontumorous Cushing's syndrome (Werk et al). Similar remissions in Cushing's Disease have been produced with DDT and other halogenated hydrocarbon insecticides and the decrease in cortisol levels is not related to rate of cortisol secretion.<sup>26</sup>

Apropos to these findings of enzyme induction it must be noted that common aspirin has no effect<sup>24</sup> and morphine<sup>25</sup> actually decreases enzymatic activity.

The list of drugs represented here is necessarily small because so much remains to be done. Perhaps the most frightening aspect of this problem is the number of iatrogenic diseases, past, present, and in the future that have been,

are, and will be unrecognized. Doctor William Osler once said, "One of the first duties of the physician is to educate the masses not to take medicine. Remember how much you do not know. Do not pour strange medicines into your patients."

Perhaps by doing this, coupled with an alert awareness of the unexplained, we as physicians can avoid "disease of medical progress."

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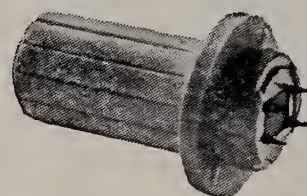
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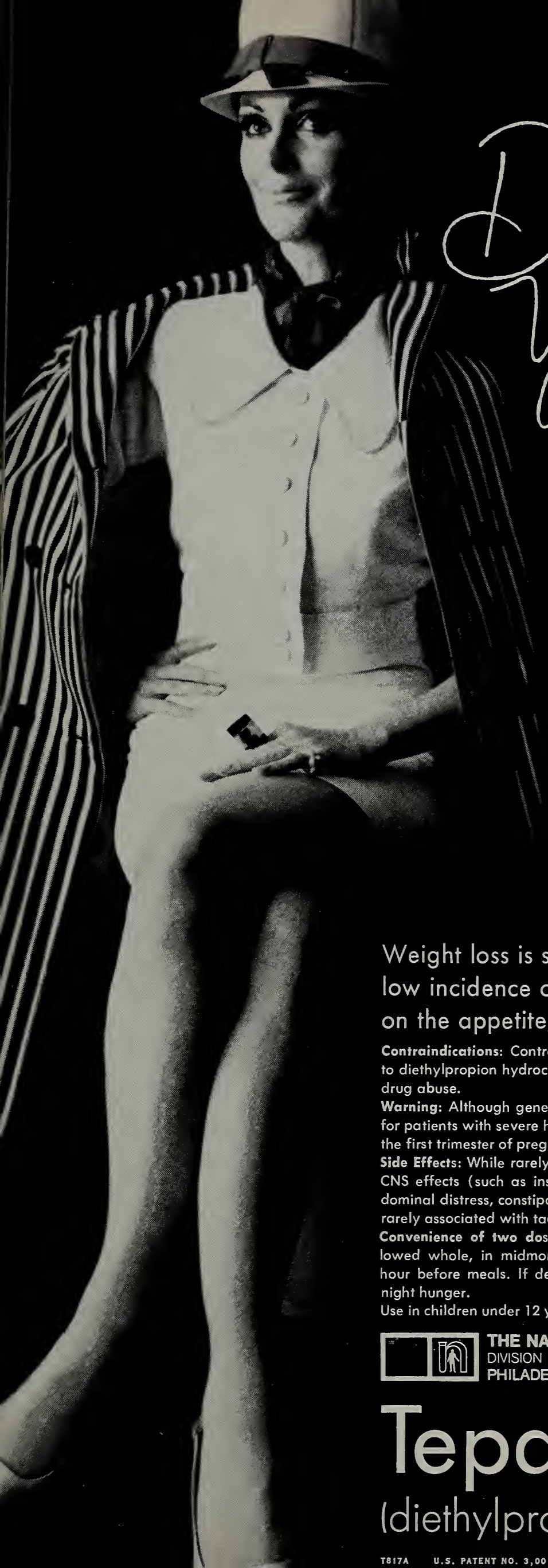
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# CLINICOPATHOLOGICAL CONFERENCE

*From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Departments of Pathology of the Hospital and of the School of Medicine of the University of South Dakota*



JOHN F. BARLOW, M.D., F.C.A.P.\*

*Pathologist-Editor*

## PULMONARY EMBOLISM

Case No. A-68-104

**Dr. Barlow:** Today we will present the following case history. The diagnosis and treatment of this disease has been a problem for many years. This case is a particularly tragic one.

This 31-year old Caucasian female in her seventh month of pregnancy entered the hospital because of severe shortness of breath of several days duration.

The patient had been well all of her life. She had had the usual childhood diseases and a tonsillectomy at age seven without complications. She had three living children. The pregnancies were normal. There was no excessive hemorrhage. Three and one half years ago after the birth of her last child, she developed thrombophlebitis with pain, tenderness and redness in the left calf. This was treated with bedrest and responded rapidly. She did have varicosities without ulceration, edema, or pigmentation. Ten days prior to admission, she suddenly became short of breath. This lasted for one day and then subsided. Four days prior to admission she developed a "lump in her throat" and slight non-productive cough. This was followed by increasing dyspnea relieved by lying down. There was no chest pain or hemoptysis. The patient did note pressure in the anterior chest.

Physical examination revealed a blood pressure of 100/60, pulse 110 and regular, temperature 98.8, respirations 32 and labored. She was a pale dyspneic slightly cyanotic white female. Examination of the head and neck was negative. The chest had a few rales at each base but no other significant findings. The heart demonstrated a tachycardia at 140 and regular but no murmurs. The patient was seven months pregnant. Fetal heart tones were heard. Examination of the extremities revealed very marked

varicosities on the left. There was no tenderness or heat in either calf. The neurological examination was negative.

Clinical pathology data revealed hemoglobin 14.2 gm%, red count 4.87 million/mm<sup>3</sup>, hematocrit 42%, mean corpuscular hemoglobin 30 micromicrograms, mean corpuscular volume 85 cubic micra, mean corpuscular hemoglobin concentration 34%, total leukocyte count 17,700/mm<sup>3</sup>. Erythrocyte sedimentation rate 19 mm/hr; differential 84% segmented neutrophils, 3% neutrophilic bands, 19% eosinophils, 9% lymphocytes and 3% monocytes. The red cells were normochromic normocytic. Platelets were adequate on smear; urinalysis—light amber, slightly cloudy; specific gravity 1.027, pH 6.5, protein 3+ glucose-negative, ketones-moderate amount, hemoglobin negative; sediment 4-6 wbc/hpf, 1-3 rbc/hpf, many squamous epithelial cells, 6-10 coarsely granular casts and 10-20 hyalin casts/lpf. Serology was nonreactive. Cholesterol was 250 mgs/100 ml. Fasting glucose 183 mgs/100ml. Prothrombin time 13.5 seconds with a 12.0 second control. Partial thromboplastin time 38.0 seconds with a 30 second control. Lactic dehydrogenase 840 units total with elevation of all bands on the isoenzyme pattern. Creatinine phosphokinase was 3 units (normal 0-12 units). Arterial pH 6.95, pCO<sub>2</sub> 47 mm. of Hg, CO<sub>2</sub> content 13 meq/L., pO<sub>2</sub> 19.5 mm. of Hg (checked), O<sub>2</sub> saturation 20%. An electrocardiogram was abnormal and revealed sinus tachycardia. The T wave and ST segment changes were thought to be due to myocarditis and possible pericarditis. However, the ST segments did not seem to be particularly elevated in any leads. Low voltage could have been due to effusion. A chest X-ray showed possible cardiomegaly. The lung fields were clear. A pulmonary scan showed a striking decrease in vascularity except in the upper lobes. The patient expired in spite of O<sub>2</sub> therapy and supportive measures in seventeen hours.

\* Professor of Clinical Pathology, University of South Dakota, School of Medicine and Pathologist, Sioux Valley Hospital.



**Dr. Barlow:** Today we are going to discuss the above case, the diagnosis of which hinges on the history of previous thrombophlebitis and on a combination of the chest X-ray and pulmonary scan. I might add that before the scan was done the attending physician was considering myocarditis, primary pulmonary hypertension as well as massive pulmonary embolism. Dr. McHardy, will you discuss the X-rays?

**\*Dr. Bryson R. McHardy:** Since the patient was quite ill, the film is not of best quality since it was taken on a portable machine. There is some slight cardiomegaly but the lung fields are clear. Since pulmonary embolism, as we shall see, is the diagnosis I might make a few remarks in that regard. You do not usually get any changes on the X-ray unless there has been a pulmonary infarction. There is no infiltrate to indicate pulmonary infarction here. Other possible things to look for are decreased vascularity to various portions of the lung or sometimes an enlarged pulmonary-artery due to the acute pulmonary hypertension. In order to evaluate either of these changes, you need films from previous admissions and I do not have either of these in this case. This makes it very hard to make an evaluation.

**Dr. Barlow:** Thank you, Dr. McHardy. Because of the possible diagnosis of massive pulmonary embolism an emergency lung scan was done. Dr. Lang, would you like to show the lung scan?

**\*\*Dr. Durward Lang:** This is the amazing scan on this patient (Fig. I). I think that you can see that there is uptake only in the upper portions of the lung fields. This scan was done with macroaggregated albumin labeled with I-131. These are usually particles of uniform size which on intravenous injection lodge in the pulmonary capillaries where they can be detected by the radioactive scanning device. As you can see from this scan, there is no uptake in the lower lung fields. This suggests with the normal chest films that there is no pulmonary perfusion to anything except the apices of these lungs. Along with the history we can only think of pulmonary embolism.

The errors that can occur in this technique are of two varieties. One is technical. Occasionally, the particles of albumin will be too small and will go right through the capillaries ending up in the liver and spleen. In this case,

you will miss lesions particularly in the bases because of the uptake in the liver or spleen which obscures the bases. Another problem is that there are arbitrary cutoffs that we set in the machine when scanning. If the cutoff is set wrong you will show a decreased uptake in the lower part of the lungs, but this is an artifact due to the setting of the machine.

Another problem which can occur is when you get a batch of macroaggregate which has both large particles and small particles. If this occurs you get a "hot spot" in the lungs where large particles are trapped.

I would like to explain the technique of injection. When you inject the isotope the patient is lying on his back. Most of the particles tend to drift to the posterior parts of the lungs. You should turn the patient over and do the posterior view first. In the meantime the particles drift to the anterior parts of the lungs. You then turn the patient over and do the anterior side second.

The other category of error is clinical errors. It should be obvious that any sort of congenital cyst of the lungs will have a decreased vascularity. We hope that it will be picked up on the X-ray. Sometimes it is not. In the same way emphysema with large blebs will give areas of decreased vascularity. These too can be picked up on X-ray. In fact, anything which causes de-

**Figure I.**



Patient's scan, uptake completely absent from lower lung fields.

\*Radiologist, Sioux Valley Hospital.

\*\*Pathologist, Sioux Valley Hospital, Associate Professor of Pathology, School of Medicine, University of South Dakota.

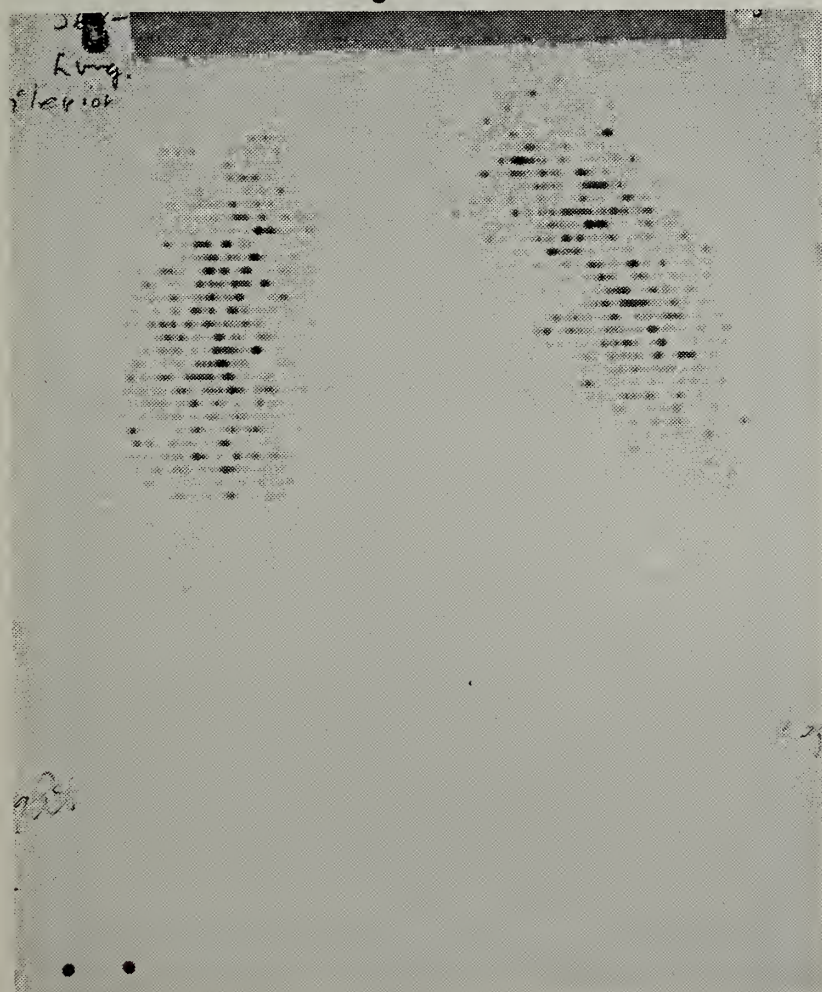


creased perfusion to a part of the lung will give a defect on the scan. Pneumonia, sarcoidosis, tuberculosis, tumor or anything that alters the capillary perfusion from normal will give decreased uptake. This is why any patient that has a lung scan must also have not only a chest X-ray, but also chest auscultation. Any change in breath sounds that would lead us to suspect that there is an area of abnormality is helpful.

Here is another scan which shows you what a relatively normal lung scan looks like in comparison to this patient under discussion (Fig. II). Actually there is a small wedge-shaped density in the edge of the lung which is hard to see. I might mention that the easiest embolus to pick up is one which gives an area of decreased uptake that is through and through; that is, it goes all the way through the parenchyma from anterior to posterior. Then it shows up as a nice defect. Obviously, if you have an infarct 2.0-3.0 cm in diameter with radioactivity in front of it and behind it, it is not going to show up because it will be masked by that radioactivity on either side of it.

**Doctor Barlow:** Thank you, Dr. Lang. Now that we have discussed some of the points and have made the diagnosis of pulmonary embolism, let me discuss a few points about pulmonary embolism. At the Peter Bent Brigham Hospital pulmonary embolism or infarction is seen

Figure II.



Normal scan for comparison. Note uniform uptake in both lungs outlining pulmonary shape.

in about 15% of autopsies. Others have similar figures. It has been estimated that there are 47,000 deaths per year from this disease. At Sioux Valley Hospital in one series of fifteen consecutive autopsies massive pulmonary embolism was seen in seven cases and was the major cause of death in six. It was diagnosed correctly pre-mortem only once.

Pulmonary embolism is a common entity, but may have a variety of manifestations. It may result in sudden death from massive pulmonary embolism, but also can cause death secondary to cor pulmonale and right heart failure as a result of recurrent multiple pulmonary emboli. It is certainly responsible for progressive deterioration in many heart patients.

The terms pulmonary thromboembolism, pulmonary infarction and peripheral thrombophlebitis are often related but are distinct entities. They are often confused. The pathophysiology signs and symptoms and treatment of each is different and understanding of each is necessary for proper management of the patient.

The most common source of pulmonary thromboemboli are the deep veins of legs. The incidence of thrombophlebitis of the deep veins at autopsy has been estimated at 25-56%. 80% of these are associated with pulmonary thromboembolism.

The distinction between phlebothrombosis (little inflammation of the vein wall and less adherent thrombi with higher incidence of embolization) and thrombophlebitis (more inflammation of the vein wall and more adherent thrombi) has been made but not accepted by all. Superficial thrombophlebitis alone rarely gives rise to pulmonary embolism without associated involvement of the deep veins. The problem is that deep vein thrombophlebitis may exist silently along with superficial thrombophlebitis. An important point made by my former chief, Dr. Benjamin Castleman, is that the disease is often bilateral and this should be considered when clinical signs are present only on one side. Another important point made by Gray is that only about 50% of patients who have clinical pulmonary embolism show any signs of deep thrombophlebitis.

Although the peripheral veins are the most common source of pulmonary thromboemboli, the pelvic or periprostatic veins, the vena cava and the right side of the heart (especially in association with auricular fibrillation when thrombi form in the atrial appendage) can be source of pulmonary emboli.

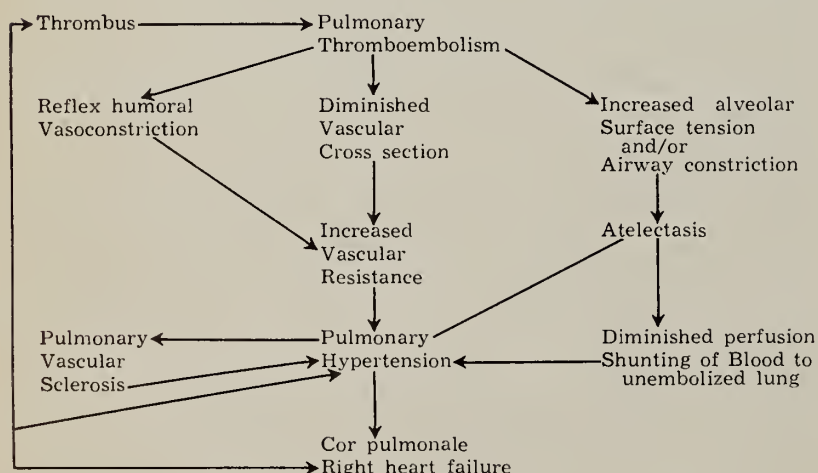


Thromboemboli have no predictable sex incidence and are more common after the age of 50. They occur in all patients and are often considered common in postoperative patients but are actually three times more common on the medical service. They are relatively rare in obstetrics, but most authorities agree that pregnancy and the postpartum state predispose to deep thrombophlebitis of the leg veins and pelvis.

The etiology of peripheral thrombi has undergone intensive investigation. A hypercoagulable state has been suspected, but has been hampered by the fact that this cannot be demonstrated in vitro. Certainly stagnation of blood flow secondary to immobilization and congestive failure is often a key and well known factor. Endothelial damage to the vein wall has also been discussed but not proved in most cases.

Massive pulmonary embolism may cause death due to decreased venous return, decreased cardiac output, and severe hypoxia. If the patient does not die immediately, a vicious cycle ending in death from cor pulmonale can occur. This cycle is the result of recurrent multiple pulmonary emboli. These result in diminished vascular cross section and increased pulmonary resistance. Secondary atelectasis and bronchoconstriction which occur in the affected area of lung also contribute. Secondary bronchial artery collaterals also form and add to pulmonary hypertension. Cor pulmonale with right heart failure cause more peripheral venous thrombi due to peripheral stasis. A progressive pathologic cycle occurs especially since pulmonary hypertension itself can cause vascular sclerosis and angiomatoid lesions in the lung leading to worsening of the pulmonary hypertension. Some feel that, at least many if not all, cases of so-called primary pulmonary hypertension are really due to recurrent pulmonary emboli.

The following diagram from Gray explains some of the cycle:



The pathophysiology of what occurs after pulmonary embolism is explained as follows: The embolus causes sudden obstruction to the pulmonary artery. This will create an area where alveoli are being ventilated but not perfused. The carbon dioxide of the unperfused alveoli drops to zero (room air) and dilutes end tidal volume of carbon dioxide to decrease the end tidal  $PCO_2$  as compared to the arterial  $PCO_2$  creating an alveolar-arterial  $PCO_2$  difference. Less total carbon dioxide and oxygen diffuse across the membranes because of the enlarged alveolar dead space caused by the embolism. The compensatory mechanisms are two. First, increase in ventilation to the non-affected areas of lung occurs to compensate for  $CO_2$  retention. Secondarily in the area of lung affected by the embolism bronchoconstriction and atelectasis occurs. This shunts blood to the nonaffected lung. Both of these tend to restore the end tidal  $CO_2$  and bring the arterial-alveolar  $PCO_2$  difference back to normal. The above is a transient phenomenon.

The next event is the development of shunts between bronchial and pulmonary arteries bringing some blood containing  $CO_2$  to the affected area. A final problem occurs when shunts between the pulmonary and systemic circulation develop. This gives rise to venous admixture resulting in an alveolar-arterial  $PO_2$  difference and varying degrees of deoxygenation of arterial blood depending on how much lung is affected.

Finally, let us discuss pulmonary infarction which usually occurs only in certain patients mainly those with pulmonary venous obstruction such as in congestive heart. Pulmonary infarction can also occur in debilitated patients or patients with pulmonary infection or malignancy, or those with sickle cell disease or in gravid women. Thus, infarction does not usually occur in a great many patients with pulmonary thromboemboli. Experimentally it has also been shown that pulmonary infarction develops only if pulmonary venous obstruction, infection, thoracic constriction or capillary injury is added.

Cough, pleuritic chest pain, and friction rub are often but not always accompanying phenomenon of infarction. Pleural effusion often is seen and is often hemorrhagic, but does not always have to be hemorrhagic. It should also be pointed out that pulmonary infarcts are not wedge shaped. The central portion is humped or convex and the periphery is largest with its axis parallel to the longest pleural surface it involves.



I might finally mention that Dr. Felix Fleischer, a radiologist at Beth Israel hospital in Boston has described transient infiltrates on chest films of patients who have had pulmonary thromboembolism. He calls these infiltrates "incomplete infarcts" because of their transient nature. Often they are confused with bacterial or viral pneumonitis. The infiltrates may well represent areas of transient hemorrhage or exudation secondary to embolism.

I think we ought to discuss something about treatment. Dr. Felker, will you tell us something about anticoagulation?

**\*Dr. Felker:** There are several methods of treatment for the patient with suspected thrombophlebitis or pulmonary embolism and these include anticoagulation with coumarin, anticoagulation with heparin, and low molecular weight dextran. Certainly if the patient is suspected of having pulmonary embolism and there are no contraindications to anticoagulation such as bleeding diathesis or gastrointestinal ulcer then I think that anticoagulation should be instituted. My own particular choice for this is the use of intravenous heparin. I treat my patients with 75-100 mg. of intravenous heparin every four-six hours. You can follow these patients with the clotting time, but more recently (and this is a paid political announcement from our Pathology service) by the partial thromboplastin time which is much more accurate. I think that we have all done clotting times when we were medical students and residents and found these inaccurate. I personally have had patients with prolonged partial thromboplastin times and normal clotting times on heparin therapy. I usually run the test four hours after the last dose of heparin. I do not do these daily unless I think the patient has some marked tendency to hemorrhage. I feel that the patient should be treated seven days with heparin.

According to Spector and Corn in a recent issue of the JAMA an activated partial thromboplastin (PTT) of 30-45 seconds is equivalent to a Lee-White coagulation time of 9-17 minutes and is normal. An activated partial thromboplastin time (PTT) of 45-60 seconds reflects some heparin activity or equivalent to a Lee-White of 17 to 30 minutes and a value of 60-100 seconds represents adequate heparin anticoagulation or is equivalent to a Lee-White of 30-45 minutes.

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\* Internist-Sioux Valley Hospital, faculty of internal medicine, School of Medicine, University of South Dakota.

A value over 100 seconds for the partial thromboplastin time represents excess heparin effect.

In the ordinary type of cardiac patient with suspected embolism or in a postoperative patient, I ordinarily switch over after seven days to one of the coumarin derivatives overlapping the two drugs such that I get my prothrombin times for the coumarin derivative in therapeutic range before I withdraw the heparin. I then continue the coumarin therapy for six weeks.

Another method of treating very ill patients such as the one described in our protocol today is with a continuous intravenous heparin drip in which 250 mg. of heparin is added to 1000 cc of Dextrose and saline and given over a period of 24 hours. This provides more constant anticoagulation in the very ill.

Another method in treating the patients with potential or suspected thromboembolism is the use of low molecular weight dextran or dextran-40. I have no particular experience with this procedure and in most of the articles that I have read, it has been done by surgeons on surgical services. Dextran appears to affect all three phases of the coagulation mechanism. The dose used is 10-15cc/kg of body weight in a 24 hour period. This is maintained for 3-5 days after initiated. This therapy with dextran-40 is still on an experimental basis. Some patients might benefit from it.

In one series that I have reviewed of 250 patient deaths on a surgical service, 47 were from pulmonary embolism. The author who was from Louisville treated his patients on a different surgical service with dextran and he had no deaths from pulmonary embolism. These cases of deaths were proven at autopsy.

**\*\*Dr. Wegner:** The two series were of similar size?

**Dr. Felker:** Yes, approximately. Dextran-40 is different than the dextran-70 which is used for volume expansion usually. One other point (and this refers to the patient under discussion) is that pregnant women do not tolerate coumarin drugs because of the danger to the fetus. Therefore, they should be treated with heparin.

**Dr. Wegner:** Is this because of hemorrhagic disease of the newborn?

**Dr. Felker:** Yes, coumarin derivatives are Vitamin K antagonists and there is danger to the fetus from hemorrhage.

**Dr. Barlow:** I might add just one point and that is that when you are using both heparin and coumarin derivative you must make sure

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\*\*Professor of Pathology, School of Medicine, University of South Dakota.



to draw your prothrombin time used in following the coumarin derivative approximately 4 hours after the last heparin dose. Heparin can prolong the prothrombin time. Occasionally, a physician is misled into thinking that he has the patient into therapeutic range according to the prothrombin time and really he has a false elevation from heparin which has just recently been given.

I would also like to say a few words about some of the problems which occur in the laboratory in following patients on coumarin derivatives with the one stage prothrombin time of Quick. There are technical factors as well as clinical factors. Among the technical factors is careful control of time, pH, and temperature in performing the test. These must be rigidly controlled and checked. Glassware must be scrupulously clean. We use disposable plastic material. An automatic clot timer enables us to eliminate some of difference between technologists because of normal human differences. Repeat determinations with checks are mandatory. Also I feel running a control in the therapeutic as well as normal range is important for adequate quality control. In drawing the specimen from the patient, one must be careful to do a clean venipuncture without mixture with tissue juice containing large amounts of thromboplastin. The proper amount of blood must be used for a given amount of anticoagulant. We use 4.5 cc of blood to 0.5 cc of anticoagulant. The anticoagulant is also important. We use sodium citrate instead of oxalate because the former preserves factor V (labile factor) better. It is often difficult to do all the prothrombin times in less than one half hour and the citrate anticoagulant reduces chances of false prolongation of the prothrombin time by a decrease in factor V.

The thromboplastins used in the test are of several different commercial varieties. They are not standardized giving rise to differences in different laboratories using thromboplastins from different sources. Therefore, comparing tests from different laboratories may lead to different results.

A problem with the test itself is that it measures activity of Factor II (prothrombin), factor V, Factor VII, Factor X and Factor I. The coumarin derivatives affect factors X and VII most importantly and factors II and IX to less extent. Factor IX is not even tested for by the prothrombin time and factor V is unrelated to the therapy. Nevertheless, the prothrombin time continues to be the test of choice in following

coumarin anticoagulation even though other tests have been devised.

It is not surprising, therefore, that some patients bleed even in the so-called therapeutic range. It should be emphasized, however, that many of these patients, especially with gastrointestinal bleeding, may have an occult lesion as an underlying cause. Bleeding in the therapeutic range may be a tip off, therefore, to otherwise occult pathology.

Beside technical factors in coumarin anticoagulation, there are other problems. Alteration to the response of the vitamin K antagonists has been described as an inherited resistance. Depression of bowel flora with antibiotics, biliary obstruction or diversion and various forms of malabsorption can cause increased sensitivity to the drugs. Renal disease and hepatic disease and salicylate therapy can also cause greater than usual responses to a given dose. Resistance has been described with lactation and hyperlipemia.

Of interest recently is the interaction of the coumarin derivatives with other drugs. Certain very common drugs including barbiturates, chloral hydrate and griseofulvin, glutethimide and meprobamate have been reported to increase resistance to coumarin drugs. The barbiturates have been shown to do this by enzyme induction in the liver. The obvious problem, of course, is that when an interfering drug is removed, the patient may rapidly develop prolongation of the prothrombin time and active bleeding.

Dr. Phil Gross has been interested in prevention of pulmonary embolism in surgical patients and represents one viewpoint in this regard.

**\*Dr. Philip Gross:** My concern with thromboembolic disease is in the area of trauma to the lower extremities. When I really got into the subject, I found that it has had extensive investigation particularly in Europe in the last ten years and only recently has been getting a great deal of attention in this country. Perhaps one of the best studies was done by a pathologist named Seavitt. This study was done in 1959. He took all patients with fractures of the hip and divided them into two groups. One group was anticoagulated when they came into the hospital and the other group he treated without anticoagulation. He found that 28% of the untreated group developed clinical thrombophlebitis and 18% of these developed pulmonary embolism. Of these 10% died. In the anti-

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\* Orthopedic Surgeon, Sioux Valley Hospital.



coagulation group 10% developed thrombophlebitis but none developed pulmonary embolism. What is even more interesting is that on careful autopsy dissection he found 84% of those who were untreated had thrombophlebitis as compared to 40% of the anticoagulated group. These were rather extensive and careful dissections of the veins. I believe that this is a particularly good study and shows that thrombophlebitis with possible subsequent pulmonary embolism is a very common problem and, as Dr. Barlow pointed out, not always diagnosed. In patients with trauma of the lower extremities, it is the most common cause of death and is particularly common in patients with fractures of the hip, femur, pelvis or about the knee. Because of the foregoing and some other studies our group has been anticoagulating all patients with fractures of the hip for the past year. We have learned a few things from this experience. Our results are coming out about the same as everybody else's. We are preventing pulmonary emboli. We are not preventing thrombophlebitis and we still see that although, I think, to a lesser degree. We have found that if we anticoagulate patients in the usual manner, that is getting the prothrombin time up to  $2\frac{1}{2}$  times normal, we run into occasional bleeding. As a matter of fact, I had a hemorrhage yesterday in a lady on whom I had done a hip prosthesis. Her control was 12 seconds and her prothrombin time 30 seconds. If we anticoagulate them so that the prothrombin time is one and a half to two times the control they still seem to get the protection and do not run into the bleeding problem. I will have to say that all of the above is a clinical impression and I do not have my figures on paper, but I do feel that we are preventing pulmonary emboli by anticoagulation.

I think that we should stress that the disease of thrombophlebitis and pulmonary thromboembolism is not just a matter of blood coagulation. There are a number of factors that come into play. I think that the age of the patient and the weight of the patient as well as factors such as the amount of trauma to the lower extremities, the degree of immobility and the duration of immobility that patients are undergoing must all be taken into consideration. As a matter of fact, one physician weighed all these factors and by giving them a certain weight in a computer has been able to predict pretty accurately the incidence of thrombophlebitis in various patients.

Another point that I want to bring out is about interference with healing. We are often

asked whether anticoagulation will cause interference with healing. This subject has been studied by Dr. Striechfield in New York. Unfortunately, he did this on chinchilla rabbits and you do not nail too many hips on chinchilla rabbits. He found that if the heparin was given before or immediately at the time of fracture there would be some delay in healing. However, with the use of coumarin, especially if it were used in the immediate postoperative phase so that the clot has time to form, there was no delay in healing. There are two factors involved. One is that you do need a clot to have the adequate healing. The other is that heparin is a mucopolysaccharide similar to the chondroitin sulphate of connective tissue and heparin can vie with this material in the healing process. Therefore, there is a chemical and mechanical factor involved. If you anticoagulate right after surgery or right after the fracture occurs then you do not delay healing.

**Dr. Barlow:** Thank you, Dr. Gross. Dr. Ensberg, will you discuss some of the surgical aspects of this problem.

**\*Dr. Dorence Ensberg:** First, I would like to say a little bit about dextran. I might preface all of my remarks by saying that I cannot really say anything dogmatic about the treatment of pulmonary embolism because there is considerable controversy in the field. Dextran, as Dr. Felker pointed out, is being used on an experimental basis. Its dosage is controversial and its effects are controversial. I talked to the group at Brooke Army Hospital last November in the burn unit and their dosage is less than Dr. Felker described. It is 7cc/kg/day for one week; then 3cc/kg/one week; then 3cc/kg every three to five days for six weeks. They were using clinical dextran, a mixture of 75 and 40. So far they have no reason to be disappointed in its use in the prevention of thromboembolism. Recently a report from California throws cold water on the whole thing saying that dextran is of no use in the prevention of thromboembolism. However, it is being used and I think could well be used in patients who have some relative contraindications as to the use of anticoagulants. Theoretically, with the use of smaller doses you can avoid the bleeding tendencies that can occur with dextran.

I think that everybody in recent years is well aware that there have been surgical attempts in the treatment of the disease under discussion.

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Pulmonary embolectomy has been tried and after a recent blush of enthusiasm there has been some more conservative thinking. This has been due to several factors. First, the operative mortality is extremely high in the neighborhood of 50-55%. A second factor is that even large pulmonary emboli may lyse and disappear leaving relatively normal lungs. Therefore, there is real question that goes into the decision to do a pulmonary embolectomy concerning whether that patient should be tided over by more conservative means or become part of the high operative mortality. I do not feel that the original enthusiasm for pulmonary embolectomy is as great as it was. There are indications for it. One of them is patients who do not rally over a period of 1-2 hours after having a massive pulmonary embolism under good conservative medical management. This means the patient has continuous shock approaching death. Some authorities feel that pulmonary angiogram is essential before attempting a pulmonary embolectomy. I think it should be pointed out that the whole idea of pulmonary embolectomy is still something that is limited to only a few large medical centers. It is still very much in the "ivory tower" stage. How long did this patient live?

**\*Dr. Ohrt:** She survived 17 hours.

**Dr. Ensberg:** I would suppose that this patient might be a candidate for pulmonary embolectomy. I think we ought to discuss also the matter of vena caval interruption. There have been a number of people who have recommended less than total ligation of the vena cava such as a sieve or a serrated clip applied to the vena cava in an effort to reduce the postoperative complications. I think, as time has gone on, that we are finding out there is less or very little difference between total vena cava ligation and the sieve, fenestration or serrated clip procedures as to later complications. I think now we are at a point where some feel that total ligation has the same results as one of the other procedures and others do not. There are some pretty definite indications for total ligation. Septic embolism is the main one. Another one is a patient who has had a massive pulmonary embolism and has survived this episode precariously. He cannot tolerate another embolus. Another indication for some type of ligation of the vena cava is in those cases in which anticoagulants are contraindicated.

There has also been a resurgence of the surgical attack with removal of emboli from the leg

veins. I think that medical men see much of the acute thrombophlebitis but surgeons tend to see the postphlebotic patient and the horrible problems that can occur. I think that this explains why some surgeons feel that there should be an attempt to do an iliac or femoral thrombectomy. There is a great deal of difference of opinion here as when the above can be done, how long after the patient has experienced symptoms that it can be done, and as to the procedures for doing it. The general opinion is that ten days or two weeks after the thrombi have formed is a maximum time. Others are more vigorous and will attack the vein up to 4-6 weeks later. They have had some success.

One other point is the use of urokinase. This substance is being used experimentally. It is hard to obtain even though it is made from human urine and there should be plenty of that. Some have had very dramatic results using urokinase. Others are less enthusiastic about it. I think really that it is too early to tell and this is still an experimental problem.

There is the constant controversy between surgeons and medical men as to whether heparin or coumarin is the therapy of choice. In thrombophlebitis surgeons often prefer heparin. One reason is that heparin also has an activation effect on the fibrinolytic system so that it is not only a matter of anticoagulation.

**Dr. Barlow:** Thank you, Dr. Ensberg. Dr. Stahmann, you had something to do with this case and I believe an heroic procedure, namely post mortem Caesarean section, was considered. Would you like to comment?

**\*Dr. Stahmann:** As I understand this case, the diagnosis was not clear and there were not really good findings in the leg veins. When I saw the patient she was moribund. We considered post mortem Caesarean section but fetal heart tones disappeared two hours before death. I suppose that we might have considered treatment if our diagnosis had only been done a little earlier. I was particularly interested in what Dr. Gross said and I can remember several years ago when some surgeons used homeopathic doses of coumarin to prevent pulmonary embolism. I do not mean to say that the doses being used by Dr. Gross are homeopathic. However, it has been attempted before.

**Dr. Ensberg:** I think I would like to bring out one very interesting report and this was a re-

(Continued on Page 37)

\* Gynecologist and Obstetrician, Sioux Valley Hospital, Clinical Faculty, School of Medicine, University of South Dakota.



port on the value of elevation of the feet. Of course, one of the main problems in thrombophlebitis is stasis and elevation of the feet certainly decreases this. I read an article once in which a physician elevated the feet approximately 20-40 degrees on all of his patients and had remarkable results in prevention of pulmonary embolism. I certainly do not feel that wrapping is much use. 90% of the wrapping of the legs that you see is not properly done. Early ambulation should certainly also be considered and should be done in every patient and is better than wrapping. I think that we might be better off if we used this concept of elevation of the feet more often. You do have to be careful in an older patient with poor arterial circulation, however.

**Dr. Barlow:** Thank you very much for this interesting discussion. I hope that our diagnosis and therapy for this disease of increasing importance will continue to improve.

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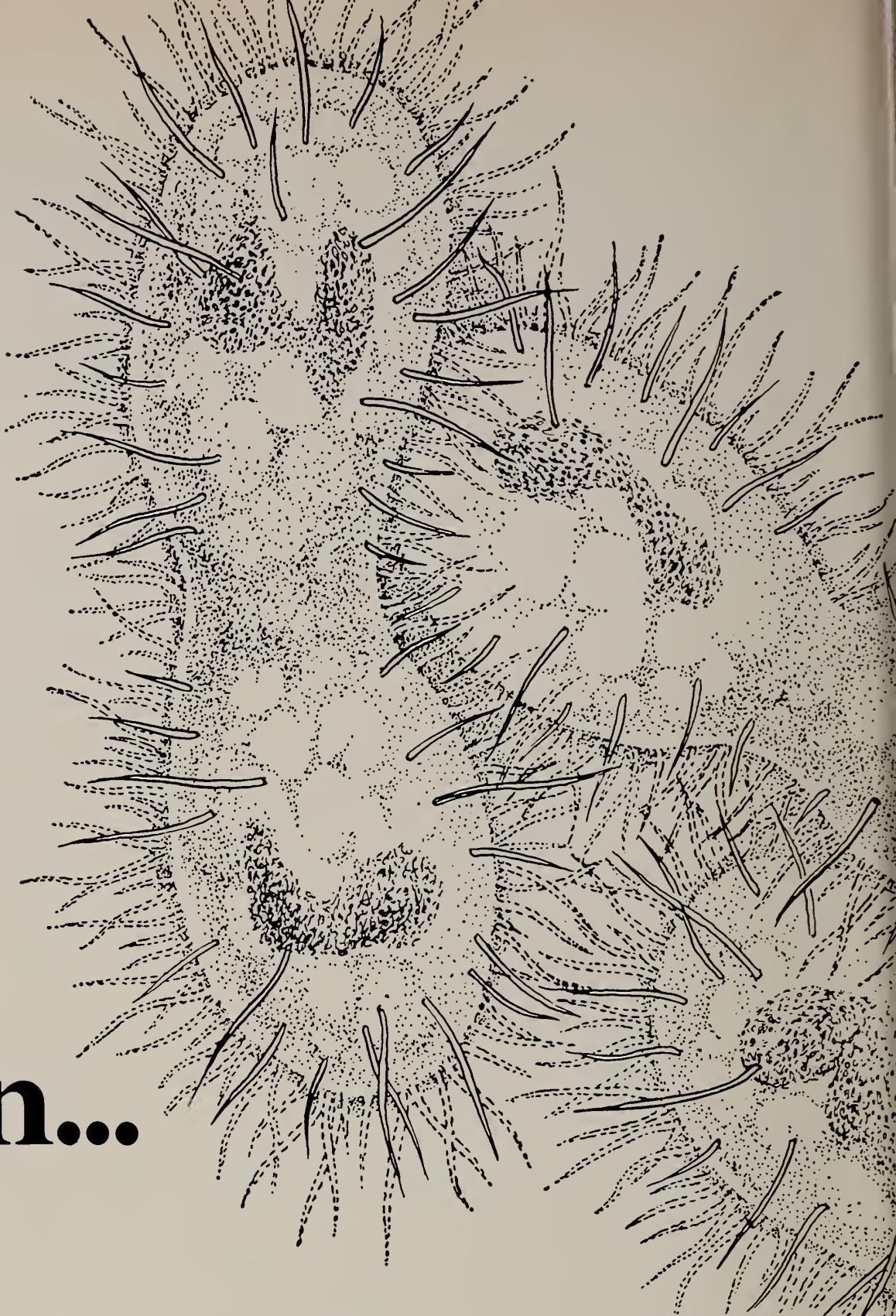
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## THE SOCIAL SECURITY DISABILITY PROGRAM

### How Recent Amendments Will Affect The Physician And His Patients

By Stephen M. Brzica, M.D.\*  
Chief Medical Consultant

*Private practitioners came under social security in 1965. In addition to earning retirement and survivors protection, they may also have earned disability protection. Work credits could have been accumulated before 1965 through internships, residencies, military service and other covered employment. This article discusses the disability program, and how recent changes in the law affect the physician and his patients.*

If you pay — or if you have ever paid — social security contributions on your earnings, you and your family may be covered by the social security disability program.

In the disability program, a worker under 65 may be eligible for monthly payments if he is disabled because of a severe physical or mental impairment which has lasted (or is expected to last) a year or longer. He must be unable to do not only his usual job, but any work in keeping with his age, education and experience.

The disability program was improved by legislation that became law early this year. As a result of an increase in benefits under the new social security amendments, monthly payments can amount to as much as \$189.90 for a disabled worker and \$395.60 for a family. In forthcoming years, maximum monthly benefits will be even higher.

To be insured for disability purposes, a person disabled when he is 31 or older needs to have worked under social security for at least 5 of the 10 years preceding the onset of disability. For younger workers, who may not have had the chance to work this long, the work requirement ranges down with age to as little as 1½ years of work credits.

Under the new amendments, an additional group of people — disabled widows (including certain surviving divorced wives) and disabled dependent widowers of insured workers — can become eligible for reduced benefits at 50 or older, even though they themselves never worked. The disability must occur before or within 7 years after the spouse's death — or, in the case of a widow caring for a child entitled to benefits, within 7 years after her benefits as a mother end. NOTE: Factors such as age, education and previous work experience are not considered in deciding whether a widow is disabled (as they may for a disabled worker).

Benefits begin with the 7th full month of disability. (A 6-month waiting period is required by law.) Payments can last as long as the disability continues. At 65, payments to disabled workers are converted into retirement benefits without any change in amount.

#### Helping Your Patients

Many physicians routinely advise any patient who they think might qualify for disability

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Sioux Falls, South Dakota 57101



benefits to consult his social security office. Such advice can be a great service to the patient. Since disabled patients are often having financial difficulties, your suggestion that they file may result in their getting urgently needed funds.

The people in any social security office can tell a claimant what the eligibility requirements are and can help him apply for benefits. If a person is unable to come to the office because he is homebound or hospitalized, a social security representative can arrange to visit him.

Up to the present the most frequent causes of disability have been arteriosclerotic and hypertensive heart disease, emphysema, schizophrenic disorders, pulmonary tuberculosis, rheumatoid arthritis and osteoarthritis. Currently in South Dakota about 2,900 disabled persons — plus about 2,700 dependents — receive about \$336,000.00 a month in benefits under the social security disability program.

#### **Reporting Data**

When a patient applies for disability benefits, he is expected to furnish reports from his treatment sources for use in evaluating his claim for disability benefits.

Disability decisions under the social security program are made by an evaluation team consisting of a physician and a lay disability evaluation specialist. The team works in an agency of the State in which the applicant lives — in South Dakota, at the Disability Determination Unit, Division of Vocational Rehabilitation, Sioux Falls, South Dakota.

Typically, the evaluating physician is a private practitioner serving the agency on a part-time basis. He reviews the reports from physicians and hospitals and, in conjunction with the non-medical member of the team, decides whether the applicant's impairment is disabling under the law. The evaluating physician neither sees nor examines the patient. He depends entirely on the evidence reported by you and others who have examined or treated the applicant.

Experience has shown that the extent of a patient's disability can be determined largely on evidence from his own physician's records. By giving a detailed report of objective data in your files, you can help speed the decision on your patient's claim. On the other hand, long delays can result if the physician responsible for evaluating the evidence must write back to you or seek from other sources medical information about symptoms, signs and laboratory findings that you may already have in your files.

To be most helpful, report the same information that you would send any colleague to give him a complete medical picture of the patient. This report should contain not only a diagnosis, but also a complete history, results of physical examination and relevant diagnostic tests.

You may wish to save time in preparing the report by enclosing photocopies of pertinent portions of the patient's chart, including laboratory reports, electrocardiograms, x-rays and the like. Originals are welcome and will be promptly returned if requested. **Under the law, your patient — not the Government — is responsible for providing the initial medical evidence in support of his claim.**

Sometimes more medical evidence is needed for an evaluation than is available in the patient's chart. In this situation, the physician evaluating the claim may ask you to perform the needed tests and examinations at Government expense, or he may find it necessary to refer the patient for an independent consultative examination, also at Government expense. When the latter is done, the consultant's report can be sent to you if you wish.

#### **"Childhood Disability"**

In addition to covering disabled workers and disabled widows, the social security program has a provision for "childhood disability" benefits — a somewhat anomalous title since these benefits are paid after the person reaches 18. Ordinarily, children cannot get social security benefits as dependents after reaching 18 unless they are full-time students, and then only until they reach 22. But under the childhood disability provisions, a person continuously disabled since before reaching 18 can be eligible for benefits after he reaches 18.

Childhood disability benefits are payable when the beneficiary's parent covered under social security dies or becomes entitled to retirement or disability benefits. Benefits can continue as long as the "child" lives if he remains disabled. He need not himself have worked under social security.

Since 1957 the childhood disability program has awarded monthly benefits to nearly 300,000 persons too handicapped to be self-supporting. Over 65 percent of beneficiaries under this program suffer from some form of mental deficiency. Other prevalent conditions of beneficiaries under the program include cerebral palsy, schizophrenic disorders and epilepsy.

#### **Motivating Rehabilitation**

In addition to paying cash benefits, one of the main goals of the disability program is to help



restore as many applicants as possible to gainful work. At the time your patient's claim is being evaluated, he is also being considered for possible services by South Dakota Division of Vocational Rehabilitation. Such services—which include medical rehabilitation, counseling, teaching of new employment skills, training in the use of prostheses and job placement — are usually financed from State-Federal appropriations.

Additional resources are also provided through social security trust funds to pay the costs of rehabilitating certain disability beneficiaries. This should save social security money because in the long run the cost of rehabilitating beneficiaries is less than the expense of paying them benefits.

As the patient's physician, you are in a good position to reinforce his interest in returning to productive work, if this is feasible. Incorporated in the social security disability program are several incentives for rehabilitation that doctors often cite to help motivate patients.

For instance, a worker on the disability rolls who returns to work despite a severe impairment may continue to get monthly benefits for as long as a year while he tries to re-establish himself as self-supporting. If at the end of this period he shows himself able to work, benefits stop. Benefits continue, however, if his attempt is unsuccessful. This helps overcome the anxiety of a beneficiary who fears all income will be cut off if he fails in his attempt to work.

As a further incentive, former beneficiaries who have recovered or returned to work get special consideration should they again become disabled. If disability recurs within 5 years (7 years for widows), they need not go through another 6-month waiting period before benefits resume.

#### **SOCIAL SECURITY DISABILITY PROVISIONS AT A GLANCE**

- \* Benefits go to disabled workers under 65 and their dependents.
- \* A disabled worker needs credit for a certain amount of work under social security. If he is disabled before age 31, he can now be eligible for benefits with credit for fewer years of work than before.
- \* Widows and dependent widowers who are 50 or older can receive reduced benefits based on disability, if the spouse was covered under social security.
- \* Persons handicapped continuously since before 18 may get benefits under the "childhood disability" provisions when a parent covered under social security dies or becomes entitled to retirement or disability benefits.

- \* Benefits are payable if the disability has lasted, or is expected to last, 12 months or longer or result in death.
- \* Benefits generally begin with the 7th full month of disability.
- \* Benefits for a worker are the same amount that retirement benefits would be if he were 65.
- \* All applicants are considered for vocational rehabilitation services.

#### **ANNOUNCEMENT**

The following ophthalmologists have joined together to found a new journal of general ophthalmology, **THE JOURNAL OF EXPERIMENTAL AND CLINICAL OPHTHALMOLOGY**, which will begin publication on March, 1969:

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The new journal will fill a long-recognized need to reduce the congestion existing in established ophthalmology journals. It will expeditiously publish important theoretical, experimental, and clinical manuscripts, authoritative reviews, society proceedings, and information on new developments in drugs and instrumentation. New and emerging ideas in all phases of ophthalmology will be given careful consideration.

Manuscripts and other material for publication are currently being sought for the early issues. Inquiries and manuscripts should be mailed to the Editorial Correspondent; **JOURNAL OF EXPERIMENTAL AND CLINICAL OPHTHALMOLOGY**, 30 North Michigan Avenue, Chicago, Illinois 60602.



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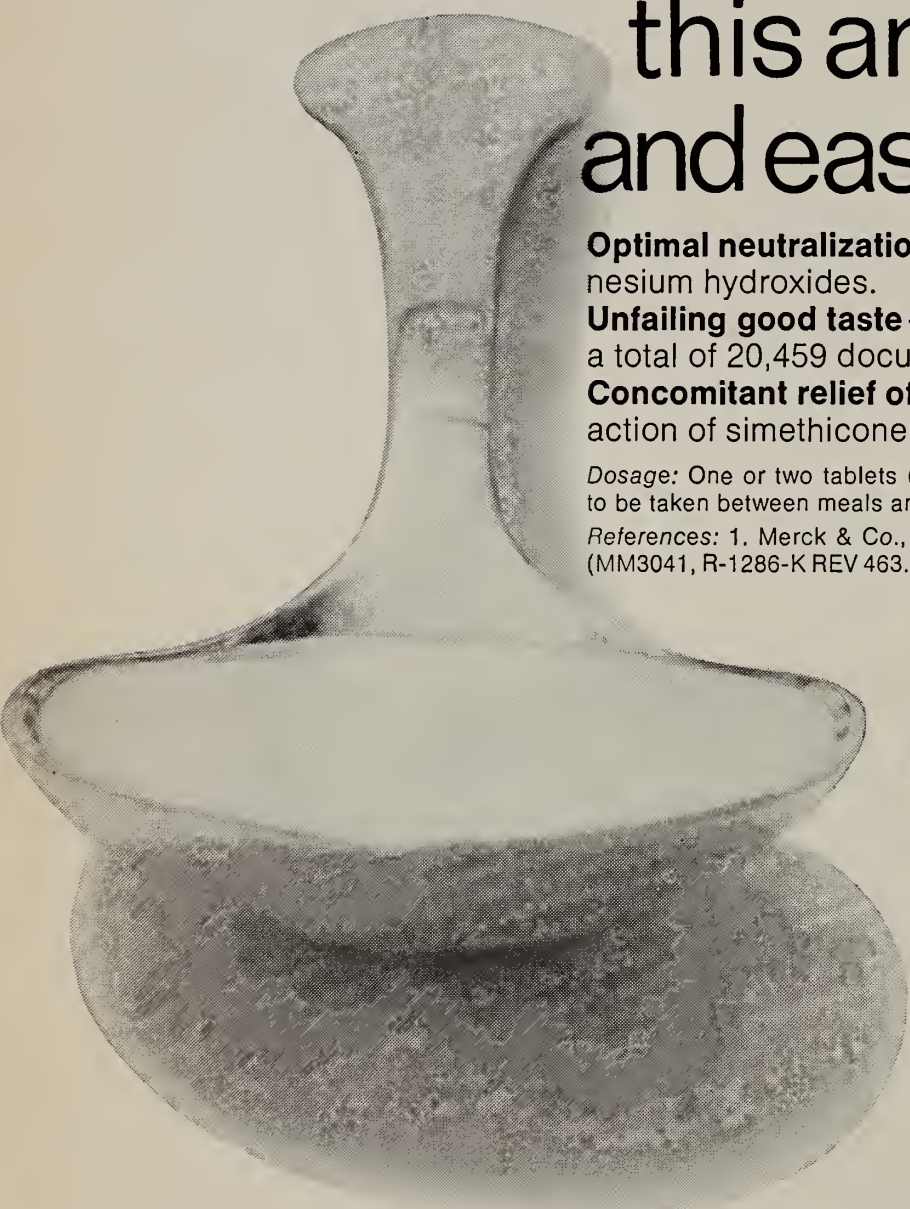
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## Path CAPsule

Submitted by the College of American Pathology in connection with the South Dakota Society of Pathologists.

### AMNIOCENTESIS

In hemolytic disease of the newborn due to Rh incompatibility, 80% of babies are born alive. Of these 95% should live and suffer no harm since kernicterus and other damage due to hyperbilirubinemia is preventable by exchange transfusion. However, 20% will die *in utero* or at delivery if untreated. Of these 35-50% may be saved by judicious treatment either by premature induction of labor or Caesarean section. More recently intrauterine transfusion has been found to further reduce the mortality of erythroblastotic infants.

The selection of cases for treatment requires reliable assessment of the severity of hemolytic disease before birth.

Since fully 7% of all cases of hemolytic disease in the first affected infant result in still birth, reliance upon obstetrical history alone is not warranted. Furthermore, there are many reports of severely erythroblastotic infants and even stillbirths associated with low titer of incomplete antibody in the mother's serum. The detection of bilirubin breakdown products in amniotic fluid by spectroanalysis has provided the most practical guidelines for management of the severely erythroblastotic infant *in utero*.<sup>1</sup>

All women who are immunized, as evidenced by the presence of anti-Rh antibodies in their serum, are considered by many to be candidates for amniocentesis. Amniocentesis should be attempted around the 30th week of gestation. However, when there is a history of stillbirth and especially if the husband is apparently homozygous for the Rh factor, amniocentesis should be done much earlier, around 20 to 22 weeks gestation.

Approximately 5 to 10 ml of amniotic fluid are obtained by percutaneous puncture. The fluid must be protected from light since the pigments disappear rapidly in bright light. If the fluid is protected and stored at  $-10^{\circ}\text{C}$ . the pigments are preserved for analysis weeks or even months later. Cellular debris is removed by centrifugation, and the fluid is analyzed using a continuous recording spectrophotometer.

In a normal specimen a fairly linear curve is obtained when optical density is plotted against wavelength (Fig. 1). In sharp contrast is the marked peak at 450 mu. of a severely affected fetus (Fig. 2). The significance of the peak at 450 mu. must be related to the duration of pregnancy since there is a progressive decrease in the degree of the deviation normally from 27 weeks to term. Probability charts have been constructed for estimating the severity of affliction plotting optical density at 450 mu. against maturity in weeks.<sup>2</sup> In general, a rising 450 mu. peak on repeated amniocentesis is more important than the height of the peak and indicates urgent treatment by intrauterine transfusion or premature induction of labor.<sup>3</sup>

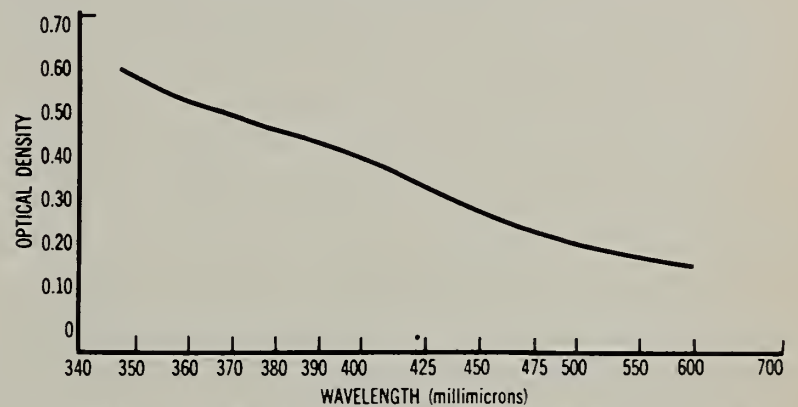


Fig. 1 — Spectral curve of a normal amniotic fluid at term.

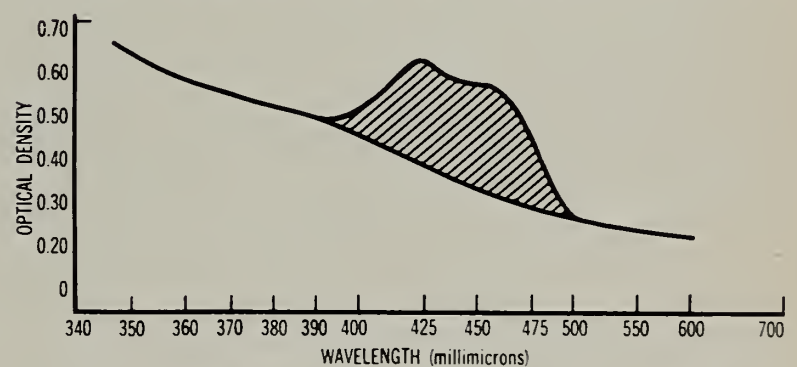


Fig. 2 — Spectral curve of amniotic fluid of a severely affected fetus, superimposed upon a normal curve. The shaded area represents the net increase in absorptivity at 450 millimicrons.

Because of the costliness of a recording spectrophotometer and tediousness of manual scanning with a standard spectrophotometer most hospitals have not given amniocentesis fluid analysis the widespread utilization it deserves. More recently a chemical bilirubin assay has been reported using standard spectrophotometers found in all hospital laboratories. Scrupulous technique using a highly sensitive method for bilirubin assay is employed. Exposure of the specimen to light and contamination with meconium or fetal blood must be avoided. Repeated specimens are necessary for most reliable interpretation.

If the above conditions are observed the laboratory can render a valuable new service to the



clinician in the ante partum treatment of erythroblastosis. The correlation of spectral and chemical estimation of clinical severity is summarized in Table I.<sup>4</sup>

**CRITICAL CUT-OFF POINTS FOR THE  
SPECTRAL AND CHEMICAL ESTIMATION OF  
CLINICAL SEVERITY**

Freda's Classifi- cation	Clinical Interpretation	Net Absorptivity at 450 m $\mu$ .	Total Bilirubin mg/100 ml
1+	Normal or possibly affected	<0.20	<0.28
2+	Affected, but not in jeopardy	0.20-0.34	0.28-0.46
3+	Distressed and probably in failure	0.35-0.70	0.47-0.95
4+	Impending fetal death	>0.70	>0.95

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**SCARCITY IN THE MIDST OF PLENTY**

On the question of the shortage of physicians, the president of the American Medical Association has said that it is impossible to put too much emphasis on the goal of creating more physicians as well as more health professionals and technicians in all categories to meet the growing demand for health and medical services. Dr. Dwight L. Wilbur has also said, "Expenditures for health by private citizens, employers, labor unions, other organizations and all levels of government approach \$50 billion a year, seven percent of the Gross National Product. Certainly all of these facts give added emphasis to the efforts of the AMA, the AAMC and all other professional and health-oriented organizations toward increasing the number of persons to be educated and trained for the vital work of providing health care."

**90th CONGRESS IN REVIEW**

In the field of health care, the 90th Congress was not particularly conspicuous. Of the 29,132 bills considered by that body, 1,435 related to health care. The total number of health measures enacted into public law was 31. Most of these provided for extensions and amendments to existing health programs.

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# RETIREMENT

G. I. W. COTTAM, M.D.

On January 20, 1969, G. I. W. Cottam, M.D., retired some 42½ years after his graduation from the University of Iowa Medical School in June, 1926. His five years of post-graduate surgical studies included such hospitals as Augustana and Research-Educational of Chicago; St. Mary's at Rochester; Peter Bent Brigham at Boston; and the Miller Hospital at St. Paul. Among the many excellent surgeons observed at surgery were Doctors Nelson M. Percy, Carl A. Hedblom, Jerome R. Head, William and Charles Mayo, Sr., Harvey Cushing, Harry B. Zimmerman and John T. Rogers.

It is interesting to note the depression conditions on January 20, 1932 when practice was begun here. There was widespread unemployment and many business failures in this city of 35,000. It was almost impossible to borrow money from the banks or elsewhere, even with good collateral. You could have packages delivered anywhere in the city limits for 10 cents and the correct time was given gratis day or night to encourage business. McKennan, Sioux Valley, and Moe Hospitals were charging \$2.00 a day for ward beds, \$3.00 for semi-private, and \$5.00 daily for private rooms. The monthly office rent shared with Dr. Allan Craig, in the old National Bank of South Dakota Bldg. cost \$35.00 apiece and the Receptionist-typist was glad to get \$60.00 a month total salary. (I note Harl Anderson was getting \$80.00 a month for six 8 hour days per week.)

On March 1, 1933, a partnership was formed with the late Dr. S. A. Donahoe and firm of Drs. Donahoe and Cottam existed for the next 17 years until 1950. For the last 19 years, a solo practice has been maintained until his retirement on January 1, 1969. In Dr. Cottam's offices an association of Doctors was formed as the Downtown Medical Center which existed from 1954 to 1959. This group included Drs. Cottam, Ensberg, Jameson, Barnett and Kahler.

It was during the first year of partnership in 1933 that Dr. R. W. Mullen assisted Dr. Cottam at McKennan Hospital with his patient who was suffering from a large brain tumor. This operation, it is believed, was the first of its kind in South Dakota. From this case, many neurological operations of all kinds were referred or came directly and this type of work was continued for 20 years until Dr. G. W. Smith took over

such work in late 1953. Later in 1933, the late Dr. S. A. Donahoe assisted at McKennan with an upper stage Thoracoplasty for advanced T.B., and this was also the first of its kind in this state. Lung surgery was continued and in March 1947, the late Dr. O. Chas. Ericksen assisted at Sioux Valley Hospital with another first, a total removal of a lung for Cancer. This was the beginning of many kinds of open chest surgery.

Early pioneering of new lines of surgery in a community has many difficulties and drawbacks and it has only one significance. It calls attention to the fact that there are facilities and much work of these types to be done in the area. This attracts other doctors, who have such interests, to locate in this state. At present, all types of surgery are being done in South Dakota except major heart and transplant operations. These will come here eventually but first there must exist expensive facilities, and a retreat from solo to team surgery. No matter how skillful, no solo surgeon can perform with the efficiency of a well trained surgical team.

Dr. Cottam became secretary of the 7th District Medical Society in 1933, and secretary of the South Dakota State Medical Society in 1950. He was Chief of Staff at Sioux Valley Hospital in 1947, and Chief of Staff at McKennan Hospital in 1948. He is a Life Member of the American College of Surgeons, and a member of the A.M.A., a former State Regent and a Life Member of the International College of Surgeons. Doctor and Mrs. Cottam plan to remain in Sioux Falls, South Dakota.

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## SOUTH DAKOTA NURSES STUDY NEEDS AND RESOURCES

The South Dakota Board of Nursing and the South Dakota Nurses' Association initiated a Study on Nursing Needs in South Dakota. Miss Helen Foerst, Dr. Eugene Levine and others of the U. S. Public Health Service are completing a Source Book (this is the first of its kind to be developed, and will be available for others to use) which will present current statistics within the framework of socio-economic data considered relevant to long-range planning. It is hoped that this document can serve as a tool for health manpower planning in South Dakota.

The Planning Council for Nursing Resources has been charged with the responsibility of assessing and implementing this data.

The Council has formulated seven phases in planning which include the following:



- I. Initiation and Organization
- II. Data Collection and Analysis
- III. Assessment and Development of Recommendations
- IV. Development of Guidelines for Action (The Plan)
- V. Implementation
- VI. Evaluation and Review and Readjustment of Plan as Required
- VII. Regional and Local Level Planning

At present, we are in the Assessment and Development of Recommendations phase of this study.

To accomplish this task, we have organized into three standing committees, Needs, Resources and Utilization.

Chairman of the Needs Committee: Sister Margaret Mary, Director of St. John's McNamara School of Nursing, Rapid City, South Dakota. On the Needs Committee there are representatives from these organizations or groups: Director of Nursing Service, Veterans Hospital Administration, Social Worker, Counselors, Extension Groups, Indian Health, Allied Health Groups, Nurse Anesthetist, Medical Auxiliary, Hospital Administration, Licensed Practical Nurses Association, Continuing Education in Nursing, Director of Public Health Nursing, Comprehensive Health Planning and Physicians.

Chairman of the Resource Committee: Mrs. Margaret Cashman, Associate Professor of Nursing, Augustana College, Sioux Falls, S. D. On the Resource Committee are representatives of Vocational Education, Higher Education, Veterans Organizations, S. D. Press Association, Jaycees, Inactive Nurse, Nursing Education, Farm Bureau, Public Health Nurse, S. D. Nurses' Association, S. D. League for Nursing, S. D. Board of Nursing, Members at Large, Nursing Home Administrator.

Chairman of the Utilization Committee: Robert H. Hayes, M.D., Coordinator, Nebraska-South Dakota Regional Medical Program, Vermillion, South Dakota. On this committee are representatives of Industrial Engineer, Inservice Education in Nursing, Legislator, Department of Labor, General Duty Nurses, Nursing Home Nurse, Health Insurance, State Welfare, Dentist, Division of Medical Facilities, Business, Research Bureau, Hospital Board, Nursing Student, Psychiatric Nurse and Nursing Education.

The questions asked of each committee are: Needs: What are the needs of health manpower and facilities? Resources: What is the present

health manpower and facilities situation? Utilization: How do we and can we utilize health manpower and facilities?

The Standing Committees will meet each month and plan to accomplish one of its objectives, that is, to document the nature of nursing at present and project what it can be and should be by 1970, 1975, and 1980.

Miss Joy Nelson, Head, Continuing Education in Nursing, South Dakota State University, Brookings, South Dakota 57006, is Chairman of the Planning Council.

Mrs. Therese Schwab, Planning Director of Nursing, Nebraska-South Dakota Regional Medical Program, Vermillion, South Dakota 57069, is the Project Director.

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### **MD's WELL REGARDED BY PATIENTS**

Physicians are well regarded by their patients, according to a public opinion survey recently sponsored by the American Society of Internal Medicine. Designed to determine patients' attitudes toward internists and their services, the study also produced information about patient attitudes toward other physicians. Patients in both the internist and non-internist groups were asked what they thought of the physicians they consulted. Ninety-four percent of the internists' patients and 93 percent of the non-internists' patients were highly favorable.

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### **LIFE IN THE SMALL TOWN**

In a survey entitled, "Medical Practice in Small and Large Communities," conducted by the American Medical Association, 1,853 physicians were asked what they liked best about their non-urban communities. Nearly 90 percent responded that such characteristics as friendly people, close community spirit, cleanliness, quietness, and greater freedom from the hustle and bustle of city life were the most important. Least liked aspects of small communities were limitations of services, maldistribution of health manpower resources, and resistance to social and technological change.

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### **FLUORIDATION GAINS FAVOR**

Recent survey of public attitudes on fluoridation shows that 76.7 percent of those surveyed favor fluoridation of public water supplies, compared with 65 percent in 1959. The survey was conducted by the National Opinion Research Center.



# Medicine

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Legal

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M. D.

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Ethics

## REVIEW OF ADVERTISING PRACTICES OBLIGATION OF LOCAL SOCIETIES

A great many communications have been received with respect to advertisements used by individual physicians, groups, clinics, pay clinics and hospitals owned by individuals or groups. Practically all of the advertising that has been submitted, has been found objectionable. This Council wishes to state, however, that the members of the state associations who use objectionable advertising are responsible to and under the control of the censorial agencies of the societies of which they are members. The Secretary has been directed, therefore, to refer communications of this nature to the secretary of the constituent medical association concerned, with the suggestion that they should be brought to the attention of the board of councilors, or through them to the attention of the board of censors of the component society concerned.

## HOSPITAL RADIOLOGIST'S ANNUITY HELD TAX-EXEMPT

A radiologist in charge of a hospital's X-ray department was not required to report as income a \$200 per month annuity payment made in his behalf by the hospital. Overruling the Internal Revenue Service, the U. S. Tax Court held that the radiologist was an employee of the hospital, rather than an independent contractor, and was entitled to exclude the payments on the annuity policy under an exemption for such payments when made for employees of tax-exempt institutions.

The hospital guaranteed the radiologist \$300 per month in addition to the \$200 annuity and also paid him 50 per cent of the fees it collected from radiology patients. No taxes were withheld from such payments. The hospital furnished equipment, supplies, and personnel other than physicians. The radiologist had a private practice but was not permitted to treat private patients at the hospital. He did 95 per cent of the hospital's radiology work.

Information provided by the law department of the American Medical Assoc., 535 N. Dearborn, Chicago, Ill. 60610.

## BLOOD TESTS ADMISSIBLE TO DISPROVE HUSBAND'S PATERNITY

In a husband's suit for annulment, blood-grouping tests were admissible to show that he could not be the father of a child born to his wife approximately nine months following their marriage after which they had cohabited only four days and then separated. A trial court erred in refusing to admit in evidence results of the tests, the California Supreme Court ruled.

The conclusive presumption of legitimacy provided for by statute is not a presumption but a substantive rule of law. A husband is entitled to avoid the operation of the "conclusive presumption" by proof that, although there was cohabitation, it was impossible that the child was conceived during the period of cohabitation. When the issue is whether the child could possibly have been conceived during cohabitation, any competent evidence relevant to the question is admissible. Blood-grouping tests are scientifically reliable when used to exclude a male as a possible father. The blood-grouping test results were relevant because they proved that conception did not occur during the couple's four-day cohabitation. Therefore, their exclusion was erroneous.

## RETENTION OF NAME OF DECEASED PHYSICIAN

The Judicial Council was asked if it is ethical for a new physician in a community, who purchased the practice of a deceased physician, to continue the use of the deceased physician's name in his practice, in telephone listings, etc.

The Council expressed the opinion that in and of itself, it is not unethical for a new physician in a community, who has purchased the practice of a physician, whether the physician be deceased or not, to continue the use of the deceased physician's name in his practice for a reasonable length of time. The Council suggested, however, that it would be preferable for a new physician to establish his own name in the practice of the profession as quickly as possible.





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## NEWS ABOUT AN OLD DISEASE: HEMOPHILIA

E. H. Heinrichs, M.D.

Hemophilia is a disease which has been known to man for several thousand years as an ancient Egyptian decree testifies. Also the Talmud makes a provision for dispensing with circumcision in newborn males whose older brothers or maternal uncles had displayed a bleeding tendency.

Historically this disease had very tragic consequences for the human race: Queen Victoria was a heterozygous carrier and more likely an original mutation. From her offspring, the disease spread through the ruling families of four European countries within three generations. Students of history tell us that the revolutions in Russia, 1917, and in Spain, 1937, had in part been caused by the fact that the successor to the throne was a hemophilic, thus contributing to the problems of the world we live in today.

McKusick<sup>1</sup> reported about a New England family in which he traced the disease through at least 11 generations over 350 years. This family which was described before by Hay (1813) and Osler (1885) is remarkable inasmuch as the family displayed quite a longevity even under present standards. One afflicted man attained 82 years of life and thus in several instances the disease was passed to the next generation by the father, causing all of his daughters to be carriers.

Recently new knowledge has been acquired about this most interesting disease which makes it worthy of a review.

Hemophilia A, or the classic hemophilia, is inherited as a sex-linked recessive character-

istic. Its pathogenesis consists of a congenital deficiency of the anti-hemophilic globulin (AHG or Factor VIII) in the plasma as a result of the absence of a gene complex for this globulin on the x-chromosome. Female carriers do not show any consistent clotting defect, but can sometimes be detected with very intricate laboratory tests. If a female exhibits the typical symptomatology of hemophilia she is either genetically not a female or does not have classical hemophilia unless she has a hemophilic father and a mother who is a carrier for the disease.

Differential diagnostically one has to consider:

- a.) Mild hemophilia: Here the AHG-levels are lower than normal but not completely absent suggesting possibly an abnormal AHG. It is now well established that two types of hemophilia A exist.<sup>2</sup>
- b.) Vascular hemophilia: This is similar to a.) but with an added vascular component.
- c.) Hemophilia B (Christmas disease): It is based on a deficiency of the plasma thromboplastin component and also inherited sex-linked recessively, but responding to different treatment. Also here, two types of the disease are known.<sup>2</sup>
- d.) Hemophilia C: The disease is thought to be based on a deficiency of plasma thromboplastin antecedent (Factor XI) and is inherited autosomally dominant.
- e.) Parahemophilia: The defect of this disease is a deficiency of proaccelerin activity (Factor V) and is inherited autosomally recessive.



- f.) Stuart Factor Disease: This disease entity is presently debated. The absence of the Stuart Factor (Factor X) is thought to be the cause. Genetically it is inherited autosomally recessive.
- g.) The deficiency of the Hageman-factor (Factor XII) results in a prolonged blood clotting. In at least one patient this abnormality has been associated with a deletion of the short arm of the chromosome No. 6.<sup>3</sup>
- h.) Essentially the remainder of the 13 known factors involved in blood clotting are known to be deficient or inhibited, thus creating a wide array of pathological conditions. (Factor XIII has just been described<sup>4</sup>).

In the case of the "classical" Hemophilia A, a patient can maintain fairly well ordinary life except for cuts, trauma and operations, if his AHG-level is between 5 - 10% of normal. After trauma one needs a 30 - 50% AHG-level for the operation, 10 - 20% for the time of healing. A 20% AHG-level is necessary to stop a bleeding, less to maintain cessation.

The determination of AHG-levels is rather difficult and available only in specialized laboratories since the factor is extremely labile. Because the test is not available under ordinary circumstances, one has to treat a patient in need more or less empirically.

One unit AHG is the amount of AHG contained in one ml. normal fresh or fresh frozen plasma. The biological half lifetime (time of reduction of AHG to half after injection in the blood stream) is 8 hours for the first dose, 15 hours for the subsequent administrations. In order to maintain a higher level than 20% of normal AHG in a hemophilic patient in order to stop the bleeding, one has to give 10 units per Kg. as a first dose, followed by 5 units per Kg. every 6-8 hours thereafter. Monitoring with available laboratory tests has to supplement the close clinical observation, the latter often the only available means.

Fresh or fresh frozen plasma was until recently the backbone of the therapy. If pooled plasma was used, the danger of transmitting the hepatitis virus was extremely great, as a matter of fact, almost all hemophiliacs became a victim of this disease after some time. Separation of the AHG (cold ethanol precipitation) without further treatment was of no help since the hepatitis virus concentrated in the active precipitate (Cohn fraction 1).

The greatest limitation of any plasma therapy was the large volume which was frequently needed to achieve satisfactory blood levels and as such overloaded the circulatory system. It still can be used for minor bleeding episodes and dental extractions.

The recent availability of AHG concentrates has solved this problem and made it possible to attain AHG-levels necessary to perform surgery on hemophilic patients previously impossible.<sup>5</sup> Under investigation is presently a program for the victims of this disease which consists of daily injections of AHG concentrate in order to prevent bleeding episodes. The day is near when such treatment is available like the insulin substitution for diabetics. Then the estimated number of 100,000 bleeders today in the United States will increase tremendously because these patients will attain procreative ages.

Presently the following concentrates are available:

- 1.) Fibro-AHF (Merck, Sharp and Dohme) contains 1 unit/ml., but can be given in larger amounts (up to 7 times) as compared to plasma, because of lesser hydrophilic properties.
- 2.) Cryoprecipitate (few hospital based blood banks, for example Children's Hospital in Philadelphia, Pennsylvania) contains 10 units/ml.
- 3.) Method Four (Hyland) is the Glycine concentrate No. 1 and contains 7 units/ml. It is preassayed, stable but expensive.
- 4.) Not yet available commercially is a Glycine concentrate No. 2 (Hyland) which is similar to the Glycine concentrate No. 1 but contains 27 units/ml.
- 5.) Under investigation is also a fibrinogen-free concentrate (Red Cross) which contains 1,000 units/ml.

As the products become more concentrated the greater is the cost for the unit of AHG.

If the bleeding of a hemophilic is severe the dosages mentioned before may have to be increased up to 50 units/kg. every three hours.

The hematuria of the hemophilic does not respond to the treatment with AHG alone. Prednisone (1 mg./kg. per day) should be added until the bleeding stops, and should then be tapered off over two to three days.

EACA (epsilon amino caproic acid) inhibits the fibrinolytic activities of the blood. It can be used for dental extractions and minor surgical procedures if AHG has been used until the operation is done or the bleeding has stopped.



Its routine use is of no value and it is contraindicated in cases of hematuria.

Two percent of the patients treated with AHG will develop inhibitors, regardless of the AHG preparation. Since these inhibitors are true antibodies Imuran must then be used to suppress the antigen-antibody reaction.<sup>6</sup>

The transplantation of healthy spleens into hemophilic animals has resulted in normalization of the pathological blood clotting mechanism. Studies are under way to investigate if humans would benefit from a similar procedure.<sup>7</sup>

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#### ANNOUNCEMENT

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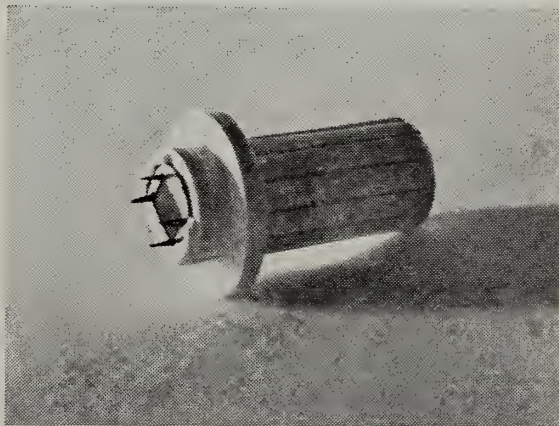
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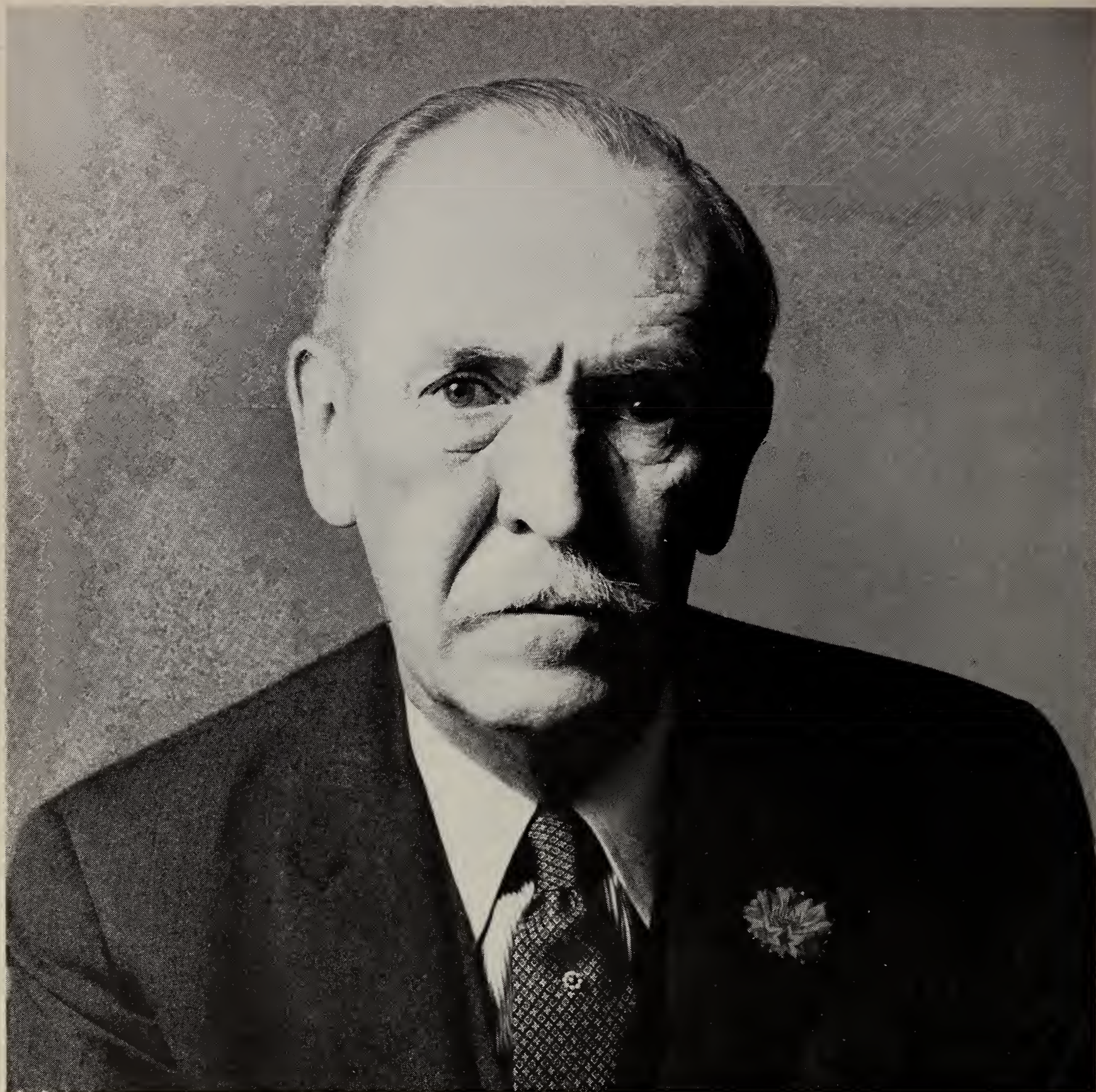
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(Continued on Page 72)



# The two-stage power of the pink pill for U.R.I. symptoms is nothing to be sneezed at.

The immediate and continuous-release actions built into each Novahistine Singlet can give most of your patients prompt and long-lasting relief from symptoms of upper respiratory infection, including fever, aches and pains. Not only does Novahistine Singlet provide a vasoconstrictor-antihistamine formulation to reduce congestion and help restore normal ciliary activity; it also contains an antipyretic-analgesic compound to relieve the fever, aches and pains that so frequently accom-

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# P R E S I D E N T ' S P A G E

Comprehensive Planning under P. L. 89-749 is slowly getting underway across the country. In some areas planning has advanced rapidly while in other areas the first, faltering steps of this brain child have just been taken. It is certain that it will be a while before the creature stands erect or walks alone and it will be a long way in the future before it runs. The agency for Comprehensive Health Planning in South Dakota has been designated as a function of the Governor's office and in June 1968, the Governor appointed the twenty-five man, consumer oriented Advisory Council. The belated appointment of the Advisory Council marked the beginning of C. H. P. in this state and an office has been established in Pierre. It is desirable that physicians of the state promote area wide planning on a multi-community basis since the problems and needs of various parts of the state may be quite different. The law provides well for such local or "grass roots" participation.

The Regional Medical Program (Heart Disease, Cancer, Stroke) is entirely separate from CHP, having been established under P. L. 89-239. The Nebraska-South Dakota RMP has concerned itself with planning and review of various proposals directed toward improved diagnosis and treatment of heart disease, cancer, stroke and allied diseases. Some of the proposed programs will apparently be given operational funds in the near future. Since RMP is an independent bi-state program it is perhaps difficult to see how it will mesh with Comprehensive Planning in South Dakota. Some have been concerned about the poor delineation and possible overlap of programs and have feared friction or perhaps headlong clashes. It would seem that with proper handling the RMP would supplement CHP by eventually providing the Programs and hardware found to be necessary by careful local and area wide planning.

It must be emphasized that Comprehensive Health Planning is an agency for planning only and has no authority. This was discussed at the recent regional meeting conducted by HEW in Kansas City when it was noted that a whole host of federal programs such as the Neighborhood Health Center, Head Start and Community Action programs of OEO, The Model Cities Program, Mental Health, U. S. Public Health Service programs and RMP are all totally independent and may grow, develop and function without attention to, or regard for, Comprehensive Health Planning recommendations.

Hopefully Comprehensive Planning will develop and grow. Carefully nurtured it could be of great benefit to all. It appears to be the only agency under which some order might be established in a veritable hodge-podge of federal and local health programs. It could, by providing the proper coordination of effort, direct us to the goal of improved health care for all the people of South Dakota; the goal which physicians most desire.

John T. Elston, M.D.  
President



*This is your*

# MEDICAL ASSOCIATION

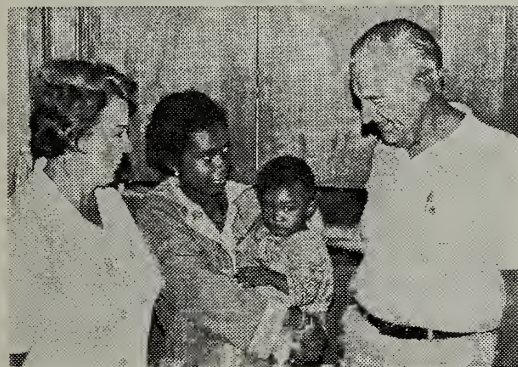
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News Notes • Changes • Births • News

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## Pop's Proverb

Time and distance do not count if people are in tune with each other.



Dr. and Mrs. Wallace Arneson donated two months of their time as surgeon and nurse at the Manambaro Lutheran Hospital on the Island of Madagascar. The island is located about 240 miles east of Africa.

\* \* \*

Sioux Falls Rotary Club members heard **Warren Jones, M.D.** discuss the use of coronary care units in treating victims of heart attacks.

The Watertown District Medical Society elected officers for 1969. They are **David Piro, M.D.**, President; **James Larson, M.D.**, Vice President; and **T. J. Wrage, Jr., M.D.**, Secretary-Treasurer.

New officers for the Mitchell District Medical Society for 1969 are President, **B. R. Skogmo, M.D.**, Mitchell; Vice President, **Charles M. Loos, M.D.**, Chamberlain; and Secretary-Treasurer, **J. O. Judge, M.D.**, Mitchell.

\* \* \*

**T. J. Wrage, Jr., M.D.**, Watertown, has been named a member of the Board of Directors of the American Heart Association.

\* \* \*

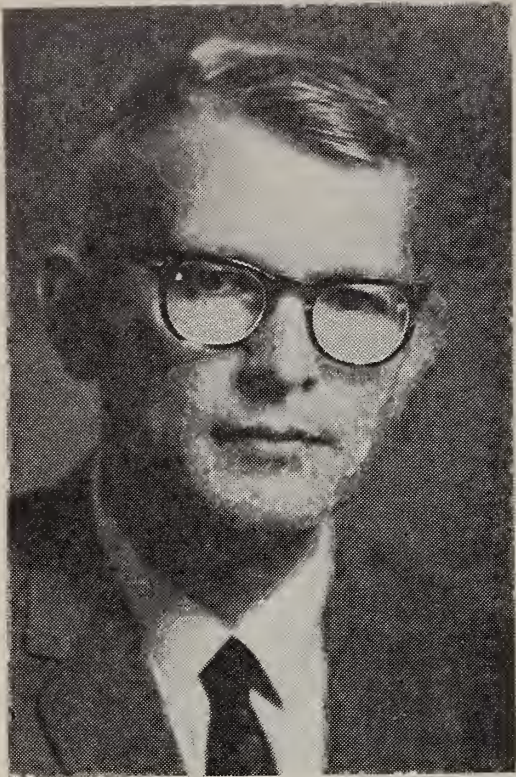
The Black Hills District Medical Auxiliary has collected numerous syringes to send to **Alfred Hofmann, M.D.**, Rapid City, who is spending three months working at the Children's Relief International Center in Saigon, Vietnam.

\* \* \*

**J. E. Ryan, M.D.**, Mobridge, spent a week at the University of Nebraska Medical Center studying the latest trends in obstetrics and gynecology.

YOUR  
CONTRIBUTION  
TO THE  
SOUTH DAKOTA  
MEDICAL SCHOOL  
ENDOWMENT  
FUND  
IS NEEDED





Ralph Nelson, M.D., Chairman, Section of Nutrition, Mayo Clinic and Mayo Foundation will lecture on "A Three Dimensional Approach to Understanding Vitamins" at the following institutions:

South Dakota State University in Brookings, Monday, March 17, 1969 — 3:30 p.m.

Augustana College in Sioux Falls, Tuesday, March 18, 1969 — 7:30 p.m.

Northern State College in Aberdeen, Wednesday, March 19, 1969—4:00 p.m.

The lecture is designed to stimulate undergraduate students to consider a career in the health sciences, as well as to inform the audience of recent developments in the field of nutrition.

The Black Hills Medical Society met on December 12, at which time **John Elston, M.D.** made his presidential visitation. Members and their wives dined following the regular business meeting.

\* \* \*

At a recent meeting of the Brookings-Madison District Medical Society **Saul Friefeld, M.D.**, Brookings, lectured on his recent travels behind the Iron Curtain. **Robert Quinn, M.D.**, Sioux Falls, gave the scientific discourse on "Diseases of the Breast—Diagnosis and Treatment."

\* \* \*

**William Stephens, M.D.**, formerly of Murdo, has opened an office in Faulkton.

**A. A. Lampert, M.D.**, Rapid City, has been reappointed to the Council on Legislative Activities of the American Medical Association. **A. P. Reding, M.D.**, Marion, has been reappointed to the Council on Rural Health of the AMA. **Alonzo Peeke, M.D.**, Volga, has completed the maximum number of years on the Committee on Medicine and Religion of the AMA and has retired from that committee.

\* \* \*

New officers of the Black Hills District Medical Society are President, **H. O. Haugan, M.D.**, Rapid City; Vice President, **W. N. Golliher, M.D.**, Spearfish; and Secretary-Treasurer, **Russell Harris, M.D.**, Rapid City.

\* \* \*

New officers for the Aberdeen District Medical Society for 1969 are President, **J. A. Eckrich, Jr., M.D.**, Aberdeen; **George McIntosh, M.D.**, Eureka, Vice President; and **Karl Kosse, M.D.**, Aberdeen, Secretary-Treasurer.

(Continued from Page 60)

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Methods of research in psychotherapy edited by Louis A. Gottschalk and Arthur H. Auerbach, New York, Appleton-Century-Crofts, 1966.

## HOSPITAL OUTPATIENT UTILIZATION ON UPSWING

Hospital outpatient department utilization reached a new peak in April, 1968, with 9,589,478 visits. This figure was 10 percent higher than the previous April.

## AMERICANS THE MOVINGEST

Americans are fast becoming a nation of nomads. Every year about one-fifth of the population changes residence, according to the National Geographic Society. Most remain in the same county, or even community, but about one in six moves to another state.

## PHYSICIAN-PATIENT RATIO IMPROVES

The ratio of physicians to patients in the United States at the end of 1967 was 151.5 physicians per 100,000 population. There were about 308,630 physicians with M.D. degrees and the population came to 230,708,000, according to an American Medical Association survey. This ratio compares favorably with statistics from a 1963 survey which showed 276,475 physicians with M.D. degrees and a population of 194,169,000 — a ratio of 142.4 physicians per 100,000 population.



## DIRECTORY

THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION

Organized 1882

711 North Lake Avenue

Sioux Falls, South Dakota 57104

### OFFICERS, 1968-1969

John T. Elston, M.D.	President	Rapid City
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J. A. Muggly, M.D.	Vice President	Madison
A. P. Reding, M.D.	Secretary-Treasurer (1970)	Marion
A. P. Reding, M.D.	AMA Delegate (1968)	Marion
R. H. Quinn, M.D.	Alternate AMA Delegate (1968)	Sioux Falls
G. E. Tracy, M.D.	Speaker of the House	Watertown
J. J. Stransky, M.D.	Councilor-at-Large	Watertown

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Bruce Lushbough, M.D.	Third District (Brookings-Madison)	Brookings
Charles Swanson, M.D.	Fourth District (Pierre)	Pierre
Winston Odland, M.D.	Fifth District (Huron)	Huron
Harvard Lewis, M.D. (1969)	Sixth District (Mitchell)	Mitchell
E. T. Lietzke, M.D. (1969)	Seventh District (Sioux Falls)	Beresford
Clark Johnson, M.D. (1968)	Eighth District (Yankton)	Yankton
C. E. Tesar, M.D. (1970)	Ninth District (Black Hills)	Rapid City
M. R. Cosand, M.D. (1970)	Tenth District (Rosebud)	Winner
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4. J. J. Stransky, M.D. (1973)
5. R. H. Hayes, M.D. (1969)

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- |                                |                           |
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| 3. Roscoe Dean, M.D.           | 6. H. Russell Brown, M.D. |

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No appointments — Committee consists of president, vice president, president-elect, secretary-treasurer, chairman of the Council, and speaker of the house of delegates.

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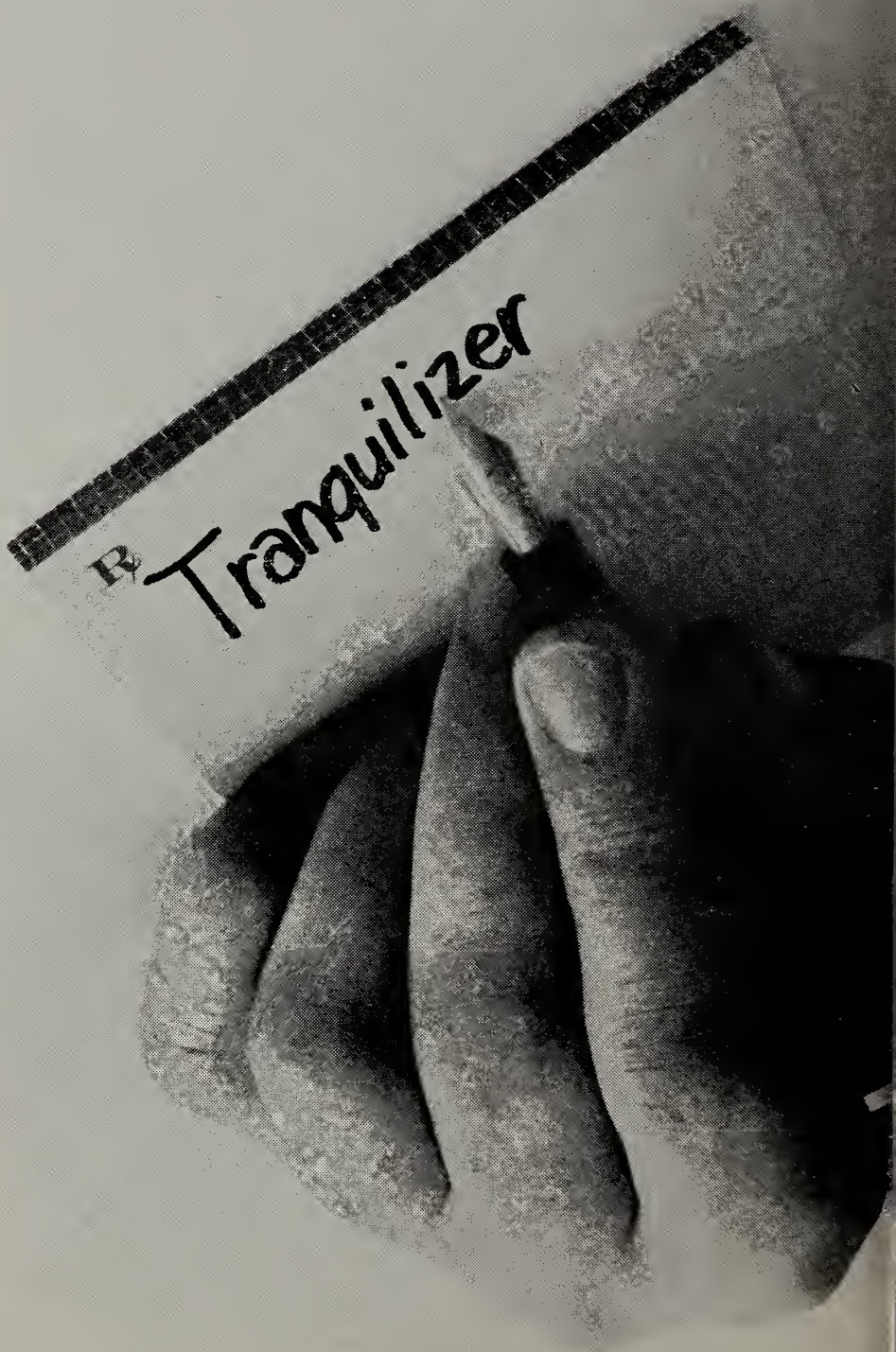
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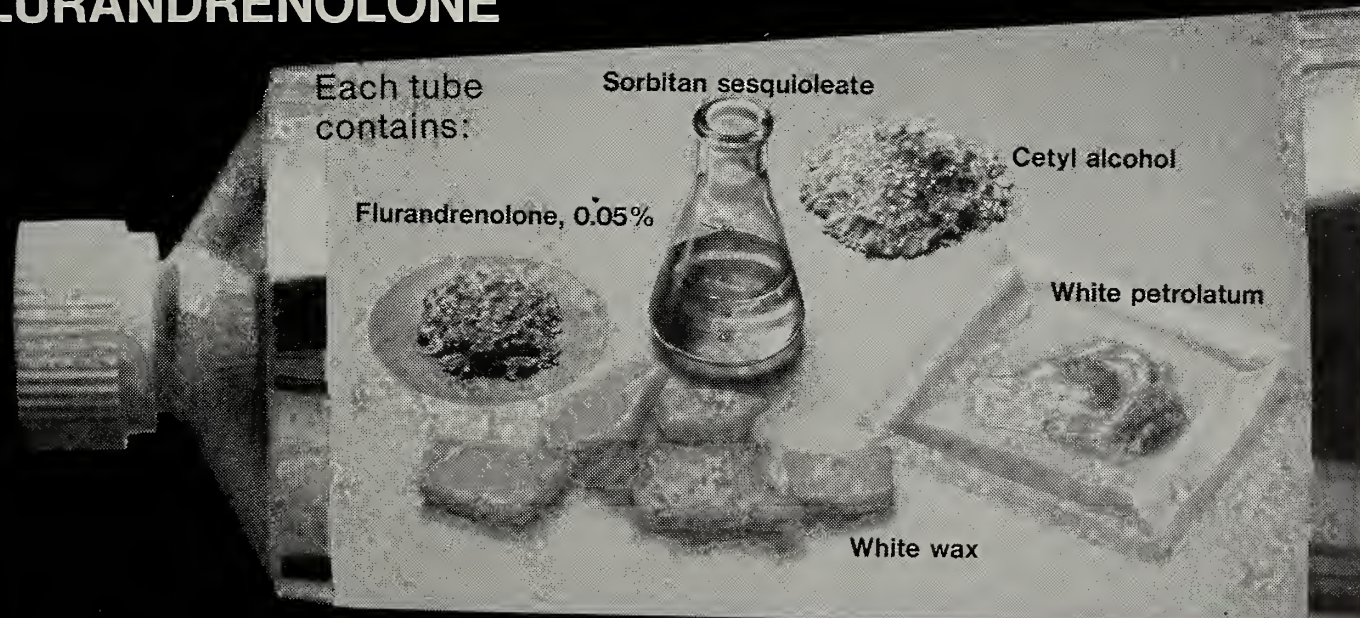
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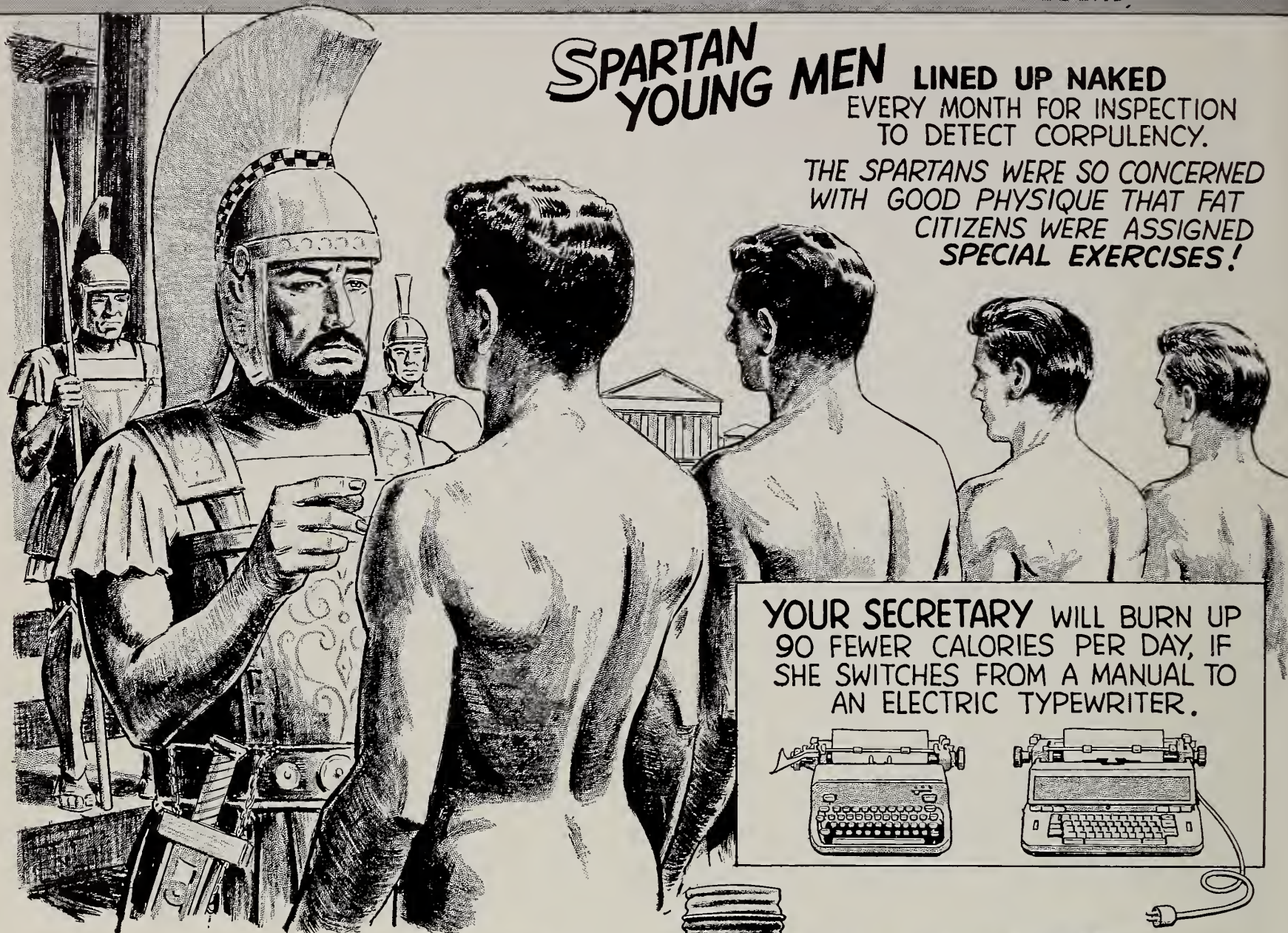
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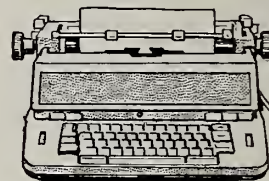
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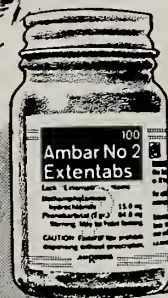
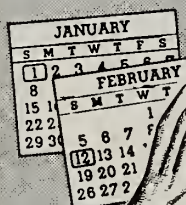


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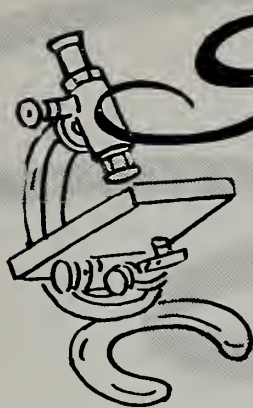
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# Scientific

# P A P E R

## PRIMARY OVARIAN PREGNANCY WITH INTRAUTERINE DEVICE

Fred S. Stahmann, M.D.  
Sioux Falls, South Dakota

While intrauterine contraceptive devices offer a high rate of protection against uterine pregnancies, they appear to offer less protection against extrauterine pregnancies and in particular, against ovarian pregnancies.

Ovarian pregnancy is a rare condition, occurring about once per twenty-five thousand pregnancies among women not wearing IUD's. It is generally accepted that Spiegelberg's criteria must be fulfilled in order to maintain the diagnosis of ovarian pregnancy. These are: (1) that the tube on the affected side be intact; (2) the fetal sac occupy the position of the ovary; (3) that it be connected to the uterus by the ovarian ligament; (4) that definite ovarian tissue be found in its wall. All of the above criteria were met in the following case.

### Report of a Case

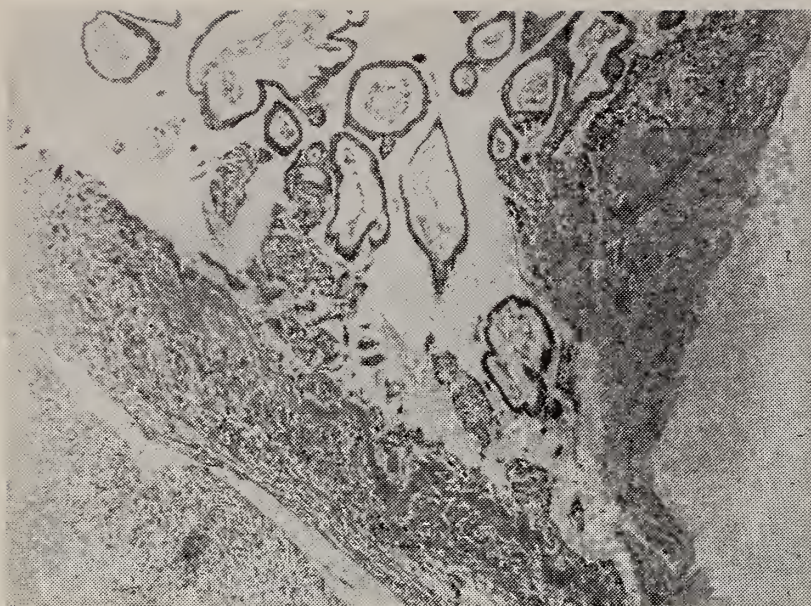
A 27 year old, Para I, Gravida II with one abortion had a size D Lippes Loop inserted in March, 1966. Except for scant premenstrual spotting of two days duration before each five day period, no change was noted in her menstrual cycle while wearing the loop. On January 3, 1968 she began to flow as at a normal menstrual period and continued somewhat less in amount than a usual menstrual period for two weeks. Severe crampy lower abdominal pain developed four days before admission to Sioux Valley Hospital on January 17, 1968 and con-

tinued until surgery a few hours after admission. The Lippes Loop was removed the day before admission. Examination revealed a retrodisplaced uterus which was painful on manipulation. The Gravindex pregnancy test was positive. The hemoglobin was 12.6 grams, white blood count 7,400. In the operating room cul-doscopic examination revealed a large hematoma in the right side of the pelvis and all pelvic viscera spattered with fluid blood. Laparotomy revealed about 1500cc of fluid blood and clots in the peritoneal cavity. The right ovary contained a hemorrhagic mass about 1½ cm in diameter and bulging from the ovarian surface about 1 cm. It had the appearance of a corpus hemorrhagicum. Blood was dripping from this area. The left ovary was normal as were both Fallopian tubes and the uterus. The hemorrhagic mass was excised and the cut surface of the ovary had the gross appearance of a corpus luteum. Following the laparotomy a dilatation and curettage was performed. The patient had a normal postoperative course.

**Pathological Findings.** — The endometrium was of secretory type with a minimal decidual reaction. The excised ovarian mass measured 1.2 x 1 x 0.8 cm and the external surface was partially covered with epithelium. Protruding from the surface was a thin walled brown cystic structure filled with dark blood. The cyst was

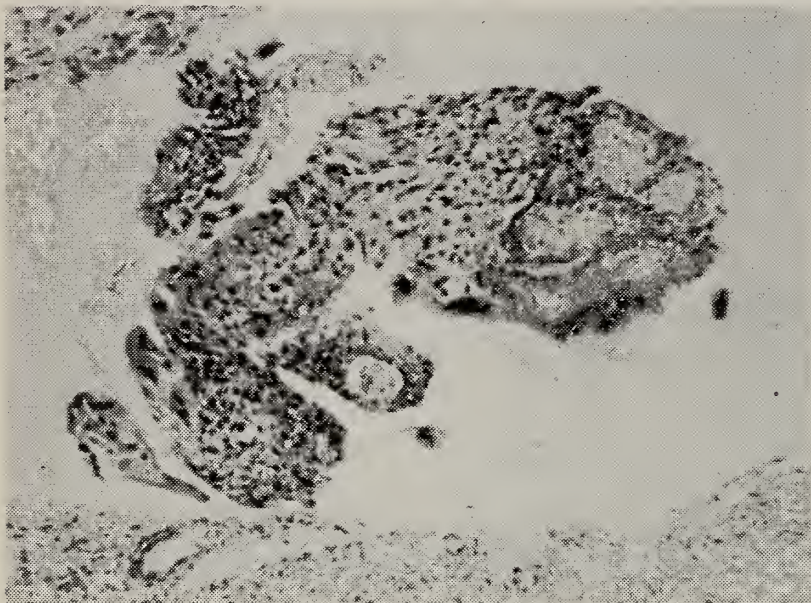


FIGURE I



Well formed placental villi and trophoblastic elements against ovarian tissue.

FIGURE II



High power view. Placental villi, trophoblast and decidua against ovarian tissue.

surrounded by a bright yellow wall. Microscopic sections showed well formed placental villi and trophoblastic elements surrounded by corpus luteum and ovarian stroma. Figures I and II.

### COMMENT

The exact mechanism of action of the intrauterine contraceptive devices is not known. Several investigators have felt that they stimulate tubal motility to the extent that fertilization is prevented, or if it occurs, the ovum reaches the uterus prematurely.<sup>2</sup> Other workers feel that the increased distention of the uterine cavity and impaired tonicity of the myometrium may interfere with implantation.<sup>3</sup> There is no evidence that they interfere with sperm migration.<sup>4</sup>

That intrauterine pregnancies occur in women wearing IUD's is well known. And the incidence of ectopic pregnancies is greater among preg-

nancies with IUD's in situ than among pregnancies without an IUD. Hall<sup>8</sup> reported three tubal pregnancies occurring among 2,330 women with IUD's. Tietze<sup>1</sup> AND <sup>5</sup> reported twenty-six tubal pregnancies among 588 pregnancies occurring in women wearing IUD's, making an incidence of 1 in 23 of tubal pregnancies as compared with the average of 1 to 250 in patients not wearing IUD's. This does not mean that IUD's cause ectopic pregnancies but that they fail to offer much protection against extrauterine pregnancies.

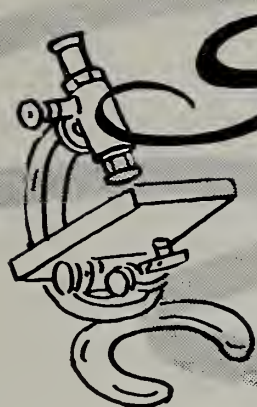
Preliminary reports indicate that the IUD offers less protection against ovarian pregnancies than tubal pregnancies. Tietze,<sup>6</sup> reporting on the data collected by the Cooperative Statistical Program for the evaluation of intrauterine devices, found 43 ectopic pregnancies in this large series, 6 of which were ovarian pregnancies. However, the exact number of IUD insertions is not stated. This proportion of ovarian pregnancies (1 to 7) is much greater than the average of 1 to 150 ovarian pregnancies among women not wearing IUD's.

The possibility of an ectopic pregnancy must be considered when a patient with an IUD complains of abnormal bleeding and/or pelvic pain. Many patients wearing IUD's have some abnormal bleeding, usually consisting of prolonged heavier menstrual periods or intermenstrual bleeding, especially during the first few months after insertion. Should this abnormal bleeding be associated with pain, one should especially be on the alert for the possibility of this serious complication.

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# Scientific P A P E R

## PKU IN SOUTH DAKOTA

Samuel Rosa, B.A., M.D.\*

Phenylketonuria was first described by A. Folling in 1934. Since then, an increasing number of investigators have added innumerable contributions to the knowledge of this disease. And while we have become more familiar with the concept, physiopathology, biochemistry and treatment of the condition, we have also come to live with the increasing controversy that now surrounds it.

One aspect of this controversy is PKU testing and the law. Because it is almost universally accepted that once PKU is diagnosed in the first few days of life and the child is placed on a special diet he will be spared the severe mental retardation which he would otherwise suffer if denied the benefit of this diet, it has become the crusade of many to bring about by any means the compulsory testing of infants to determine whether they are PKU positive or not. As a consequence, laws have been enacted in many states making it a legal obligation to test every newborn for PKU.

Without wishing to get involved in this or any other facet of the controversy we decided to determine how much testing for PKU is done in South Dakota. For this purpose, and with the help of the Mental Retardation Planning Section of the South Dakota Department of Health, we sent out questionnaires to all the hospitals in the state requesting the following information for the calendar year 1967. How many babies were born in each hospital? Were tests for PKU or any other inborn error of metabolism done? If so, which?

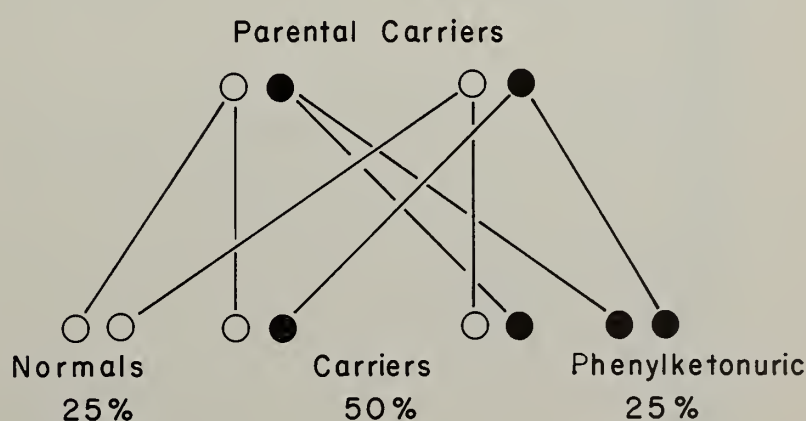
\* Staff Physician, Redfield State Hospital & School, Redfield, South Dakota.

Before discussing the results, let us review briefly this condition we call Phenylketonuria.

Phenylketonuria is an inherited metabolic disease usually characterized by severe mental retardation. A defect in the metabolism of phenylalanine, an essential amino acid, results in the excessive accumulation of phenylalanine and its abnormal metabolites in the body fluids of the affected individual.

The genetic inheritance follows this pattern: an affected child is produced from the mating of two heterozygous carriers for PKU. Each parent carries the recessive or hidden gene for the disease, although they are physically and mentally normal. In each pregnancy the chances of producing a phenylketonuric infant are 1 in 4 or 25% (Fig. 1.)

Figure 1.



GENETIC TRANSMISSION OF PHENYLKETONURIA

"From Phenylketonuria by Helen K. Berry et al. in DISEASE -A- MONTH Copyright 1966, Year Book Medical Publishers, Inc. Used by permission of Year Book Medical Publishers." Fig. courtesy of the authors.



## INCIDENCE

It is estimated that 0.5-1% of the mentally retarded in institutions in the United States are phenylketonurics. From this estimate the incidence of phenylketonuria is derived as 1 out of 10,000-20,000 in the adult or older child populations or as high as 1 in 10,000 births. The incidence for the carrier state is 1-50 to 1-70. PKU is known to occur in Europe, Japan, China and India. Although of low incidence, it has been found in Negroes. It has been considered rare among Jews, but surveys of institutions for the mentally retarded in Israel disclosed an incidence of nearly 1%.<sup>1</sup>

We are at the present time studying and are in the process of developing a pedigree and family biochemical study on two full-blooded Sioux Indian sisters in our institution who are known to be PKU positive.

A comprehensive blood study for the detection of phenylketonuria was conducted at Redfield State Hospital and School in 1962 and 1963 under the auspices of the South Dakota Association for Retarded Children and the State Department of Health. Of the 1200 tests made, there were nine patients who registered positive.<sup>2</sup>

## BIOCHEMICAL DEFECT

Normally 80% of dietary phenylalanine is converted to tyrosine. In phenylketonuria, absence or deficiency of the liver enzyme phenylalanine hydroxylase prevents the normal transformation of phenylalanine to tyrosine. Phenylalanine then becomes elevated in the blood and cerebrospinal fluid. It spills over into the urine together with abnormal breakdown products. In addition to phenylalanine, the principal metabolites that appear are phenylpyruvic acid, phenyllactic acid, phenylacetylglutamine and orthohydroxy-phenylacetic acid.

## PKU TESTING IN SOUTH DAKOTA

We received very good cooperation in our survey. Almost all hospitals in South Dakota responded to our questionnaire promptly.

Twelve thousand, one hundred twenty-two babies were born in this state in 1967. The figure includes babies born in Indian hospitals.

Of all the hospitals surveyed only five do not do PKU testing. A total of 549 babies were not tested or approximately 4.5% of the over-all total. Only two hospitals do tests for galactosemia. In some hospitals with more than one physician on the staff, PKU testing was routine for some doctors but not for others.

## PRESENT STATUS OF TESTING NEWBORN ERRORS OF METABOLISM

Inasmuch as the testing of newborns for inborn errors of metabolism has been discussed in the past few years, not only in the medical literature (Nordmo), but also in the lay press, and inasmuch as contradictory and controversial statements have been made, it appears timely to review the available testing methods and to recommend to the physicians of this State procedures which are medically acceptable and feasible.

The physicians who care for newborns are advised to follow the recommendations submitted in this presentation.

In 1961 Guthrie described the bacteria inhibition assay test which since, has proven its reliability and feasibility in testing many millions of newborns. It should be emphasized that this is a screening test only and that a positive result (above 4 mgr. %) does not constitute a diagnosis much as, for example, a positive urine glucose test does not establish the diagnosis of diabetes mellitus. A positive PKU - Guthrie test has to be followed up by confirmatory laboratory tests such as the enzymatic (LaDu) or the fluorimetric test (McCaman-Robins) and, of course, the clinical examination. The diagnosis of PKU can further be confirmed by the failure of tyrosine blood levels to rise significantly after a phenylalanine loading test. The urine should also be tested for the elevation of ortho-hydroxy-phenyl acetic acid.

The PKU - Guthrie test is simple — it requires very little blood which can be obtained by a heel prick from the newborn. The blood is collected on special filter paper and can be sent by ordinary mail to a clinical pathological laboratory. As of now, there are many such laboratories in the State of South Dakota doing the PKU - Guthrie test in sufficient number as to insure accuracy and speedy returns. (A list of the laboratories can be obtained by writing to the president of the South Dakota Society of Pathologists, c/o South Dakota State Medical Association Office.)

Because of the simplicity of blood collection, its low cost, the dispatching to and the testing at a distant point, the PKU - Guthrie test offers many advantages over other methods, especially for small rural hospitals. In addition, the blood sample can be subjected, if the need arises, to additional tests for other inborn errors of metabolism.



The American Academy of Pediatrics has recommended that such testing be carried out no sooner than 24 hours after the beginning of milk feeding; in other words, at the time of discharge from the hospital. Experience shows that more reliable results are obtained if the child has been on milk feedings for at least 48 hours. The test has to be repeated at four to six weeks of life, inasmuch as a negative result in the first week of life can conceal a late rise of phenylalanine in the blood in some patients.\*

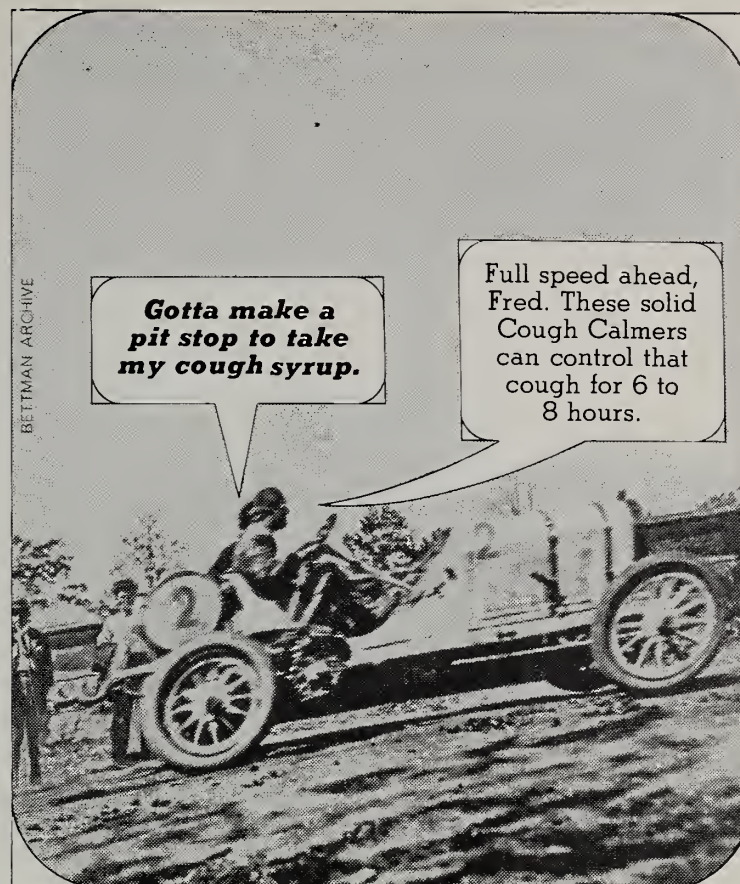
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\* Excerpts from a statement on Testing for Inborn Errors of Metabolism endorsed by the South Dakota Pediatric Society.



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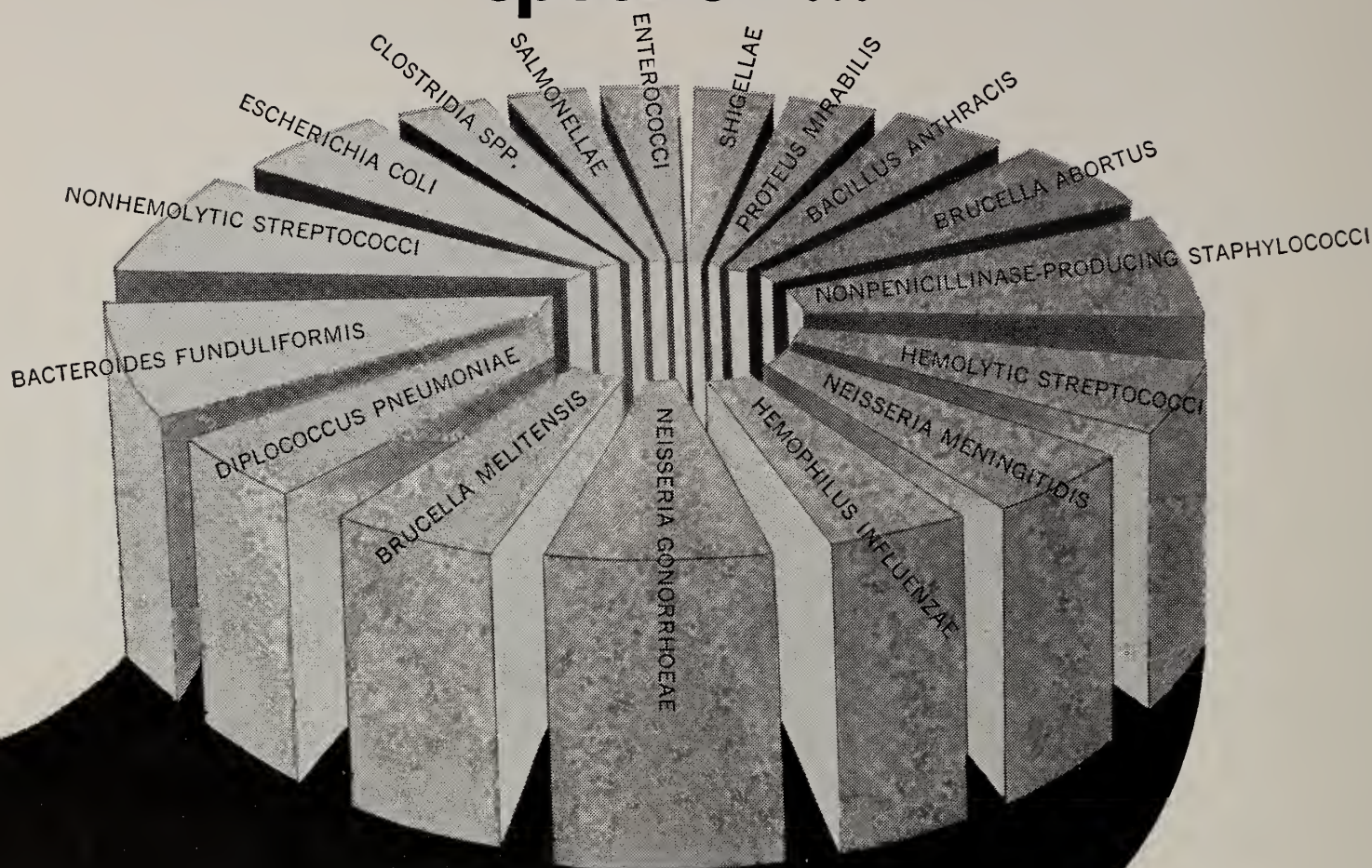


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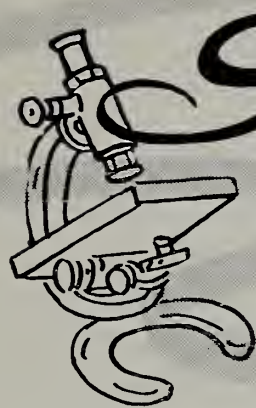
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# Scientific P A P E R

## The Management of FOREIGN BODY PROBLEMS

PAUL G. BUNKER, M.D.\*  
Aberdeen, South Dakota

A compendium on the subject, "Management of Foreign Body Problems," would be too exhaustive for this article; consequently it will be limited to those points of importance for the doctor who does not do endoscopy. These points are particularly important since foreign-body patients are usually seen first by the family physician, the pediatrician, or the internist. What these doctors **do** or do **not** do is often of life-saving importance in these emergencies.

Many deaths have resulted from unrecognized foreign bodies which are (unless an autopsy is done) usually attributed to coronary attacks. They occur most frequently in edentulous people who do or do not wear their dentures, especially when dining out, and often in combination with excessive drinking. Dr. Roger Haugen has coined the descriptive term "Cafe Coronary" for these cases.

### Radiographic Studies

It is of the utmost importance that a foreign body be suspected in every unexplained respiratory difficulty or dysphagia. Adequate x-ray studies will usually establish the diagnosis, even with non-opaque foreign bodies. If a non-opaque foreign body is suspected in the air passages, inspiratory and expiratory films should always be made to show the changes typical of obstructive emphysema — including the hyper-

ventilated lung and depressed diaphragm on the affected side, plus the mediastinal shift to the opposite side.

### Complications

If the emphysema is not relieved by bronchoscopic removal of the foreign body, and if death has not ensued, atelectasis, either segmental or massive, will develop. Later, complications such as bronchiectasis, lung abscess, or even empyema can occur. If a foreign body is especially irritating, death can occur by a patient literally drowning in his own secretions. Death can also occur from a completely obstructing foreign body such as a large bolus of unchewed meat. A bean can quickly swell to approximately 2½ times its normal size in the bronchial secretions and should be removed without delay. Similarly, a carrot can become macerated and softened into a complete plug. Peanuts may or may not provoke a fulminating reaction. Most peanuts are now eaten in a salted form which renders them less irritating.

### Localization

Lateral x-rays should always be made to aid localizing an opaque foreign body. Such a body in the transverse position would be in the esophagus, whereas in the sagittal plane it would be in the larynx or trachea. Sometimes multiple coins will be directly superimposed in the AP film and will appear as one, but can be clearly demonstrated in a true lateral view. In some cases it is necessary to x-ray all structures from the nasopharynx to the rectum to locate the foreign body. In children, x-rays should be made

\* Specialist in Otolaryngology and Bronchoesophagology.

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at 1/60 of a second to eliminate motion. Do not be misled, however, if x-ray studies are negative.

### **Contrast Media**

Contrast media are useful in locating a bone in the esophagus. My favorite method is to use a cotton pledget saturated in iodized oil. This will usually catch on the bone and, by providing bulk and lubrication, aid in spontaneous passage of the bone into the stomach. If this does not occur, the endoscopist can proceed immediately with the esophagoscopy, and the saturated pledget makes it easier to locate the foreign body. Barium, on the other hand, coats the esophageal wall and interferes with endoscopic visibility.

### **Symptoms**

The most common symptom of a tracheobronchial foreign body is a wheeze. The rales are usually coarser and lack the sibilant quality of a true asthmatic bronchitis. Children who are sick in bed with a respiratory infection or an asthmatic attack have time on their hands and are prone to put foreign bodies into their mouths. The overlapping of symptoms of an inhaled foreign body and the illness itself makes the diagnosis more difficult. A cough is also a common symptom of a foreign body, but the cough reflex fatigues rapidly; therefore the doctor should not be misled into a false sense of security when the cough subsides.

Pain and difficulty in swallowing plus excessive puddling of secretions in the hypopharynx and signs of infection are the most common symptoms of an esophageal foreign body.

### **Endoscopic Removal**

In general, endoscopic removal is the only safe method for removing a foreign body from the esophagus or tracheobronchial tree. Meddlesome treatment is fraught with danger which can convert a simple foreign body into a difficult one, or result in serious complications. The latter occur most often with blind attempts at removal, especially trying to grasp the foreign body with a uterine forceps or to dislodge it with a stomach tube. Most foreign bodies lodge first in the larynx, setting up a violent spasm. If this is allowed to subside without interference, most of these foreign bodies will be coughed out.

### **Back-Slapping**

At this stage, back-slapping will cause the patient to take a deep gasping breath, and the foreign body, if not coughed out, will more frequently be aspirated into the deeper air passages. Only if the patient is obviously dying, as

manifested by continued choking and cyanosis, should back-slapping be attempted in a last desperate effort to induce the patient to cough the foreign body out.

### **Use of Fingers**

Reaching into the mouth with a finger to remove a foreign body frequently converts a simple foreign body into a difficult one. When this is attempted the natural reaction of an infant is to try to swallow the foreign body rather than to expectorate it. If the child is old enough to understand, encourage him to "spit" it out.

### **Esophageal Foreign Body**

In adults with a bone in the esophagus, if the patient is not too uncomfortable, relaxants may be tried in the hope that the cricopharyngeal spasm will relax sufficiently to allow the bone to pass into the stomach. In this fortunate event, the patient should be put on a bulk producing diet and cautioned against taking any laxatives. Morphine still remains the best relaxant for this purpose.

### **Tracheotomy**

A tracheotomy can be of life-saving importance if the foreign body is above the level of the tracheotomy opening. Indrawing of the suprasternal notch on inspiration would suggest this necessity. A large bolus of unchewed meat is the most common foreign body of this kind. Every physician should carry a razor-sharp knife for such an emergency. An emergency opening can be made through the crico-thyroid membrane. Later a routine tracheotomy can be done if the need persists.

### **Proteolytic Enzymes**

Proteolytic enzymes, where the foreign body is a large bolus of meat in the lower esophagus, can be useful if used judiciously. However, perforation of the esophagus with ensuing death has occurred from their use. In other patients a severe tracheobronchitis or bronchial pneumonia has occurred from aspiration of the highly irritating secretions resulting from their use. If the foreign body does not pass in four or five hours after giving them, esophagoscopy should be carried out without further delay.

### **Passage into Stomach**

Most foreign bodies that pass into the stomach will pass along spontaneously, so that surgical interference is unnecessary. No laxatives should be given and the stools must be carefully examined for the foreign body. Radiopaque pointed foreign bodies should be followed by daily serial x-rays.

Occasionally a foreign body remains lodged in the fundus of the stomach for days or even



weeks. To promote its passage into the intestines I give the child a bulky meal, then hold him up by the heels, thus utilizing gravity to get the foreign body out of the fundus into the main stream of gastric contents. While the child is still in this position, the parents are instructed to massage the abdomen with a pill-rolling motion to promote peristalsis, progressing in a circular manner around the entire abdomen. This is an old-fashioned treatment for atonic constipation. The patient is then placed on his right side for a period of 30 minutes to favor passage of the foreign body through the pylorus. This procedure is repeated after each meal.

#### Practical Points of Therapy

Do not be lulled into a false sense of security if the secondary infection responds to antibiotic therapy. If a foreign body is present, the infection will promptly return when treatment is discontinued.

Try to send a duplicate of the foreign body with the patient so that the best forceps for grasping it can be pre-determined.

Never give dried bread or crackers to a foreign body patient. This stimulates gastric secretions which can greatly interfere with the esophagoscopy.

Respiratory depressants should never be given if there is marked difficulty in breathing. Death in these cases is usually from exhaustion, and the patients need to conserve all of their strength to continue breathing.

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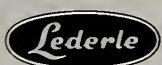
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## CORONARY ARTERIOGRAPHY

by

Harvey G. Kemp\*

Richard Gorlin\*\*

Opacification of the coronary vascular system by contrast material during cardiac catheterization has had an enormous impact on our knowledge of coronary heart disease. It has allowed us, with surprising safety, to define precisely the anatomic extent of coronary atherosclerosis in living man. Added impetus has been given to coronary arteriography by new directions in therapy. For example, there is accumulating evidence that surgical revascularization of the myocardium is not only feasible but beneficial. The normal course of a recently developed diagnostic procedure, like a new drug, is to oscillate between crests of overenthusiasm and nadirs of total rejection. Now, after some 10 years, it is useful to reassess the place of coronary arteriography in the diagnostic armamentarium.

Because this article is intended to give a general view of the field to the practising internist, surgeon, and general practitioner, relatively

little attention will be given to the technical details of obtaining high quality coronary arteriography. It will be repeatedly stressed, however, that only high quality studies provide the accurate information which justifies exposing the patient to the potential hazards of the procedure.

**Historical account.** The two methods which have received widest application are the retrograde approach from the right brachial artery and the percutaneous retrograde approach from the femoral artery using a pre-formed catheter. In experienced hands, either of these methods can yield excellent selective studies, at low risk to the patient.

**Safety.** The decision to perform coronary arteriography should be based upon the weighing of the benefits expected to accrue from the resulting information, as opposed to the potential hazards involved. The latter have recently been evaluated in a cooperative study of sixteen laboratories. A total of 3,312 studies performed on 3,264 patients were included in the study group. Sixty-six complications occurred in 62 patients, for an over-all complication rate of 1.9%. Cardiac complications occurred in 10: myocardial infarction in 5, coronary insufficiency in 4, and dissection of a coronary arterial wall without myocardial infarction in 1. Death occurred in two of the five patients sustaining a myocardial infarction. One of these patients had an aortic valve replacement with a Starr-Edwards prosthesis, and the infarction was secondary to coronary embolism. An additional death occurred in a patient with combined coronary

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Harvard Medical School,  
Boston, Massachusetts  
Investigator,  
Howard Hughes Medical Institute



heart disease and aortic stenosis, yielding an over-all mortality rate of less than 0.1%. Ventricular fibrillation occurred in 27 patients: it was found to be a more frequent complication in women, and occurred oftener after injection of the right than the left coronary artery. In each instance, the patient recovered without sequelae, indicating the relatively innocuous nature of this arrhythmia when well-trained personnel and adequate resuscitative equipment are available. Thrombosis of the brachial artery occurred in 10 patients, but in the present author's experience, this probably underestimates this complication. Fortunately if the brachial artery remains patent above the antecubital space, symptoms are slight and transient, and surgical repair is not necessary. However, surgical intervention has been necessary in about 0.5% (2 of over 400) patients in the author's experience. In both instances, surgery restored the patency of the brachial artery.

It seems reasonable to conclude from available data that the risk of death related to coronary arteriography is related to the severity of the coronary heart disease, and that significant aortic stenosis or prosthetic replacement of the aortic valve add to that risk. On the other hand, the vast majority of patients undergoing this procedure have extensive coronary disease and withstand the arteriographic study with no complication at all.

**Indications.** It is somewhat easier to quantify the potential hazards associated with coronary arteriography than to assess the potential benefit to the individual patient obtained from the information yielded by the procedure.

It is safe to generalize that the physician caring for a patient is always better equipped to do so when his knowledge of the patient's condition is extended. This is particularly true of diseases in which there is relatively poor correlation between symptoms, indirect measurements, and the extent of anatomic disease. In this regard, several specific observations about coronary heart disease have emphasized the usefulness of arteriography. Studies in the past based solely on autopsy material had shown an excellent correlation between a clinical history of angina pectoris and extensive coronary atherosclerosis. Since the advent of coronary arteriography, however, a group of patients has emerged with angina pectoris but whose major coronary arteries are free of intraluminal obstruction. The incidence of this paradoxical syndrome has been consistently reported to be about 10% of subjects referred to centers performing coronary

arteriography because of angina pectoris. The etiology of angina in this group remains obscure, but it would seem probable that the appropriate treatment and prognosis of this group will prove to be significantly different from their counterparts with arteriographically demonstrable coronary atherosclerosis. At present, there are no methods other than arteriography to differentiate these two groups.

In addition to the unusual syndrome just described, there are many patients with less typical histories, with non-specific electrocardiographic abnormalities, with unexplained congestive heart failure, arrhythmia or some combination of the above, in whom coronary heart disease is suspected but cannot be included or excluded on clinical grounds alone. An unknown, but certainly high, percentage of these patients will have normal coronary arteriograms and treatment can be redirected, either toward correction of whatever disease is found, or, in the absence of demonstrable heart disease, toward psychologic rehabilitation. The amount of psychologic damage done to patients by well-intentioned physicians who have erroneously attached the label of coronary heart disease to some masquerading symptom complex, can neither be overestimated nor readily undone.

Perhaps the largest group of patients who merit coronary arteriographic studies includes those who have clearly established coronary heart disease associated with chest pain syndromes not easily controlled by medical management. It is obvious that several value judgments are called for in including the individual patient in this group, and that probably no two observers would consistently evaluate the same patient in exactly the same fashion. Also, it is clear that while the results of myocardial revascularization are being more precisely defined in terms of pain relief, objective signs of increased myocardial perfusion, and longevity, our criteria for study will continue to change. Although it is not within the scope of this report to critically evaluate the status of myocardial revascularization, the threshold for a decision to obtain arteriographic studies is inextricably related to one's evaluation of the benefits potentially available through surgical intervention. Addressing ourselves to this specific point, the authors believe that present data strongly indicate that not only can pain syndromes be substantially relieved by internal mammary artery implantation, but that there is objective evidence of improved myocardial perfusion and further that



there is reason for optimism concerning improvement in longevity, particularly in patients surviving 18 months after the procedure. In addition, new revascularization procedures, particularly the direct replacement of segments of the right coronary artery with venous grafts, currently show promise. As surgical procedures have continued to evolve, young patients with myocardial infarction without pain or congestive heart failure have become legitimate subjects for arteriography, at least in centers where data concerning the effect of revascularization on longevity are being actively accrued and evaluated. For the present, it seems unwise and overly conservative to allow patients to severely restrict their lives because of coronary heart disease, and this is particularly true of the young patient.

There are a number of miscellaneous indications for coronary arteriography. Patients with angina and aortic valve disease being considered for valvular replacement should certainly be studied and probably patients with mitral valve disease as well. This enables the cardiologist to better understand total myocardial function and make a more objective estimate of surgical risk and ultimate prognosis. It provides very helpful information for the surgeons who will be perfusing the coronaries at the time of surgery. Uncommon specific indications for coronary arteriography include suspected congenital malformations, luetic involvement of the coronary ostia, and coronary artery embolism.

To some degree, the indication for adding selective coronary arteriography to any retrograde left heart catheterization procedure performed on a patient in the coronary age group depends upon the ease with which the particular laboratory can perform coronary arteriography. If experienced personnel are available, it can add very helpful information at a negligible additional risk to the patient. Left heart catheterization of a patient with suspected cardiomyopathy is an excellent case in point.

**Accuracy of coronary arteriography.** Every diagnostic procedure must be evaluated in the light of the accuracy of the information it yields. When one views coronary arteriography of excellent radiographic quality, a highly accurate picture of the major coronary vessels and their branches has been obtained. A study comparing the interpretation of coronary arteriography with the actual amount of disease found at necropsy done on 29 subjects at the Peter Bent Brigham Hospital confirmed this impression. Of the many opportunities for error in inter-

preting 145 coronary arteries individually, only 3 errors of functional significance were made. There was a direct relationship between the accuracy of interpretation and the radiographic quality of the arteriography, significant errors being made only in films of borderline quality.

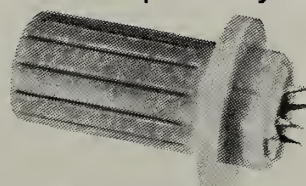
A number of factors contribute to radiographic quality, most of which are of a technical nature and are not germane to the present discussion. It is sufficient to remember that appropriate magnification, contrast, focus, and day-to-day consistency are essential and most often found in a laboratory with a high degree of interest in an almost daily use of coronary arteriography.

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# 20 Years Ago

## ... IN THE JOURNAL

TWENTY YEARS AGO IN THE SOUTH DAKOTA JOURNAL OF  
MEDICINE AND PHARMACY — March, 1949

### NEWS BRIEFS

**Dr. R. G. Mayer**, Aberdeen is recovering from a coronary attack suffered in Chicago, in February.

**Dr. Chick Robins**, Pierre, has recovered from his recent operation and is resting in Florida.

★ *Don't Forget the*  
**Annual Meeting!** ★

### GILBERT COTTAM, M.D. 1873—1949

Doctor Gilbert Cottam, former Superintendent of the State Board of Health died in a Pierre Hospital March 4, 1949.

Doctor Cottam was a widely known Sioux Falls physician and surgeon before he became head of the Board of Health in 1943. He had been in failing health for the last two years.

Doctor Cottam was born in Manchester, England 1873 and came to the United States in 1889. He graduated from the medical school of the University of St. Louis in 1893 and practiced in Rock Rapids, Iowa until 1910 when he moved to Sioux Falls.

\* \* \*

### WELCOME SIOUX VALLEY MEDICAL ASSOCIATION

Last month it was announced that the Sioux Valley Medical Association had adopted the SOUTH DAKOTA JOURNAL OF MEDICINE AND PHARMACY as its official journal. As such, the Journal will publish the papers of the speakers of the Sioux Valley meetings, starting with the meetings just past. The first article appears in this issue by **R. Perry Elrod, M.D.** of the University of South Dakota.

The Journal has been in contact with a number of members of the Sioux Valley Medical Association outside of the State of South Dakota and a large number have entered their subscriptions.

\* \* \*

### BLACK HILLS DISTRICT HEARS SKINNER AND FOSTER

**Dr. H. F. Skinner**, Pennington County Health Officer, was the main speaker at a meeting of the Black Hills District Medical Society held at Homestake Hospital in Lead on February 17.

About twenty-five members of the Black Hills District were in attendance and after hearing Dr. Skinner's discussion of public health problems, they heard John C. Foster, Executive Secretary of the Association, discuss current State and National legislation and the function of the State Medical Association's office. At completion of the discussion program, Foster, on behalf of **President John L. Calene, M.D.**, presented membership in the 50 Year Club to **Dr. J. L. Stewart**, long time practitioner at Nemo who is now residing in Spearfish. Presentation of the award, which had been kept from Dr. Stewart in advance so that the award before his colleagues came as a complete surprise.

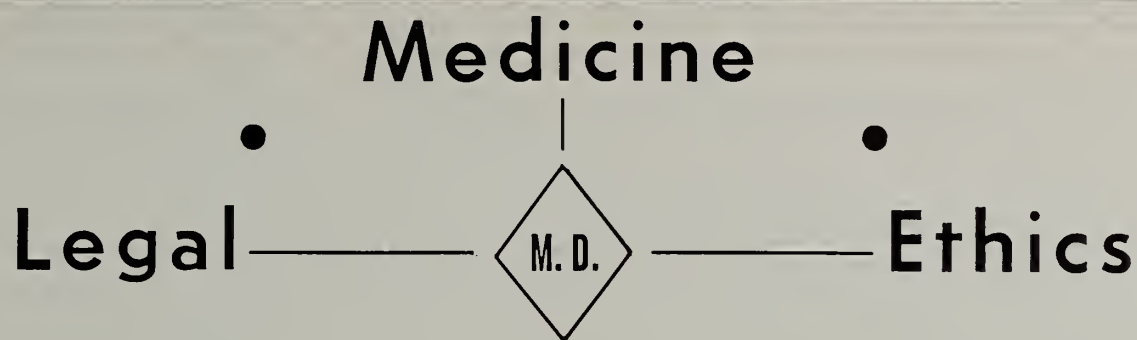
Dr. Stewart is the second to receive the 50 year pin, **Dr. S. M. Hohf** of Yankton being the first.

\* \* \*

### NEWS NOTES

The Watertown District Medical Society invited the neighboring district societies to its last two meetings. At the first meeting **Dr. H. Russell Brown** talked on the trends in Socialized medicine. The second meeting brought **Dr. Gordon Kamman**, from St. Paul who talked on Neuro-Psychiatry as it is related to office practice.





### **A COLLEAGUE'S PATIENT**

When a physician is requested by a colleague to care for patient during the colleague's temporary absence, or when, because of an emergency, a physician is asked to see a patient of a colleague, the physician should treat the patient in the same manner and with same delicacy that he would wish used in similar circumstances if the patient were his responsibility. The patient should be returned to the care of the attending physician as soon as possible.

\* \* \* \*

### **SOLICITATION OF PATIENTS AND REQUIREMENTS OF LAW**

Complaint has come that physicians have permitted their names to be posted in factories and elsewhere in such manner as to conflict with the Principles of Medical Ethics which prohibits solicitation of patients. Here again the laws of the states obtrude, since some of them specifically provide that an industry or an employer must post the names of physicians whose services are available to employees.

The determination of some questions of ethics must depend on the law; and the individual state medical association, as it holds original jurisdiction in such matters, must consider these questions, deal with them in the light of the law and seek to effect needed corrections.

\* \* \* \*

### **SOLICITATION BY INDIVIDUALS OR GROUPS**

It might be advisable at this time, when voluntary prepayment health insurance plans are progressing and when some plans are being offered by others, not connected with the medical profession, in which the formation of medical

groups is being encouraged, to discuss the ethics involved in this situation. The Council would therefore remind members of the Association that while solicitation of probable insurers or insurees is necessary to the success of medical insurance plans and is permitted, the solicitation of patients either by individuals or by medical groups is absolutely forbidden.

\* \* \* \*

### **SURGEON NOT LIABLE FOR PUNITIVE DAMAGES**

In a malpractice suit against a surgeon, in which the jury returned a verdict for the patient, a trial court did not err in refusing to submit the issue of punitive damages to the jury, the U. S. Court of Appeals for the Fourth Circuit ruled. Although the surgeon exhibited a lack of candor after the operation, the court said, that did not convert his act of simple negligence into one of such recklessness or wilfulness as to provide a basis for punitive damages.

\* \* \* \*

### **MINOR'S CONSENT TO VASECTOMY IS BINDING**

An 18-year-old patient who was married and independent of parental control and support was not entitled to recover damages in a suit against a physician for injuries resulting from a vasectomy performed on him by the physician without his parents' consent. The jury was correctly instructed as to the factors to be considered in determining his capacity to consent to the operation and the evidence supported the jury's finding that he was legally capable of consenting, the Washington Supreme Court ruled.

\* \* \* \*

### **FAILURE TO X-RAY PUNCTURE WOUND NOT NEGLIGENCE**

Damages could not be recovered from two physicians and a hospital for injuries caused by an infection which developed in a puncture

Information provided by the Law Department of the American Medical Association, 535 North Dearborn, Chicago, Ill.

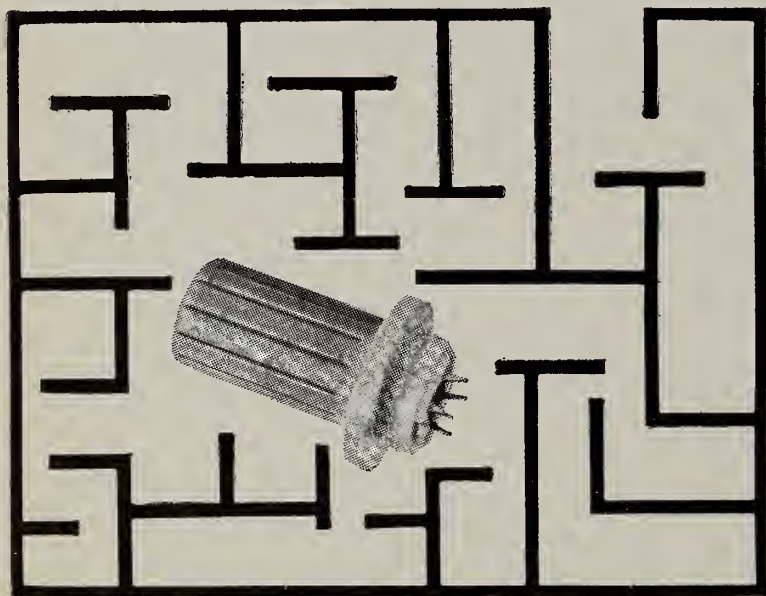


wound. Expert medical testimony supported the jury's finding that failure to X-ray the wound on the day of injury did not constitute negligence, a Louisiana intermediate appellate court ruled.

\* \* \* \*

### HOSPITAL LIABLE FOR AMPUTATION BY UNLICENSED EMPLOYEE

A minor patient was awarded damages of \$6,500 by an Illinois trial court jury in her suit against a hospital for the removal of the tip of one of her fingers by a hospital employee who was not licensed to practice medicine. The patient was brought to the hospital emergency room with the finger tip almost severed. The employee removed four millimeters. The expert medical witnesses agreed that; the procedure was one that should have been performed by a physician; a physician might have sewed the finger tip back on; the procedure was not necessary to stop bleeding. There was also the fact that since the patient's parents had not brought her to the hospital, their consent to the procedure was not obtained.



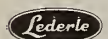
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The Department of Otolaryngology of the Illinois Eye and Ear Infirmary and the College of Medicine of the University of Illinois at the Medical Center, will conduct a postgraduate course in Laryngology and Bronchosophagology from April 14 through April 25, 1969. This course is limited to fifteen physicians and will be under the direction of Paul H. Holinger, M.D. It will be held largely at the New Illinois Eye and Ear Infirmary, 1855 West Taylor Street, Chicago, and will include visits to a number of Chicago hospitals. Instruction will be provided by means of animal demonstrations and practice in bronchoscopy and esophagoscopy, diagnostic and surgical clinics, as well as didactic lectures.

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**Contraindicated:** Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma.

**Warnings:** Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms have occurred following abrupt discontinuance. Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of child-bearing age, weigh potential benefit against possible hazard.

**Precautions:** If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or over-sedation.

**Side Effects:** Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation, have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

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New York, New York 10017

### **CHANGE IN PATTERNS OF HEALTH CARE SPENDING**

Total spending for health care is rapidly approaching the annual rate of \$50 billion. While steady increases have been recorded in recent years in both the public and private sectors, a marked change in the pattern began emerging about two years ago with the implementation of Medicare and Medicaid. In fiscal 1967, for example, while total health spending increased by 12.5 percent, spending in the public sector leaped at a rate exceeding 46 percent and in the private sector only negligibly. These figures are based on recent Social Security Administration reports.

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# MEDICAL ASSOCIATION

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News Notes • Changes • Births • News

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## Pop's Proverb

How sad that words of appreciation are most often expressed to the survivors.

Officers for the Seventh District Medical Society for 1969 are: **B. J. Begley, M.D.**, President, Sioux Falls; **Paul Aspaas, M.D.**, Vice President, Dell Rapids; **J. B. Gregg, M.D.**, Secretary, Sioux Falls; and **R. R. Giebink, M.D.**, Treasurer, Sioux Falls.

\* \* \*

**Eduardo Francisco, M.D.**, Estelline, was appointed Hamlin County Health Officer and will serve on the county Home Health Advisory Committee.

\* \* \*

The Huron District Medical Society's new officers for 1969 are **G. Robert Bell, M.D.**, President, De Smet; **W. R. J. Kilpatrick, M.D.**, Vice President, Huron; and **Emil Hofer, M.D.**, Secretary-Treasurer, Huron.

**H. L. Saylor, M.D.**, Huron, was invested as a member of the Legion of Honor of the Order of De Molay at a special ceremony. The Supreme Council confers this honor for outstanding leadership in various fields of endeavor and for achievement in fraternal and community service.

YOUR  
CONTRIBUTION  
TO THE  
SOUTH DAKOTA  
MEDICAL SCHOOL  
ENDOWMENT  
FUND  
IS NEEDED

**Samuel Southard, M.D.**, Director Task Force I National Commission on Product Safety, will be surveying the physicians in South Dakota concerning the victims of accident injuries. The questionnaire to be sent out in March will seek to elicit information on all product related injuries treated during the first two weeks in April. The National Commission on Product Safety's work is directed toward household product safety.

\* \* \*

Rapid City's first cobalt deep therapy unit for the treatment of cancer has been added to the offices of **Drs. Wood, Hewitt, Haugan and Kunz.**

\* \* \*

Association President, **John T. Elston, M.D.**, Rapid City, spent the opening three days of the Legislature in Pierre reviewing the Association's legislative program.



**N. E. Wessman, M.D.**, Sioux Falls, was elected potentate of the El Riad Shrine. Dr. Wessman was also honored as "Citizen of the Week" by the Sioux Falls Argus Leader.

\* \* \*

**Walter T. Judge, M.D.**, Milbank, is recovering from surgery for a fractured hip caused by a fall on the ice.

\* \* \*

**C. E. Kemper, M.D.**, Viborg, and his wife attended a three day medical meeting at the Hilton Hotel in Denver.

The Pierre District heard **John T. Elston, M.D.**, President of the State Medical Association, speak on Association affairs during his official visitation to that district. New officers elected at this meeting are **R. C. Jahraus, M.D.**, President, Pierre; **A. J. Tieszen, M.D.**, Vice President, Pierre; and **J. T. Cowan, M.D.**, Secretary-Treasurer, Pierre.

\* \* \*

**Roscoe Dean, M.D.**, Wessington Springs, was appointed physician for Sanborn County.

Members of the Bridgewater PTA heard **Donald Frost, M.D.**, Sioux Falls, speak on sex education.

\* \* \*

Two new members in the Yankton District Medical Society are **Kenneth A. Muckala, M.D.**, Vermillion, and **Richard R. Thornton, M.D.**, Yankton.

\* \* \*

**Dr. and Mrs. Maynard Seaman**, Onida, have entered Nepal for medical missionary work after spending the last eight years working in various mission hospitals in India.

## ANNOUNCEMENT

The Medical Genetics Section of the Department of Preventive Medicine and Public Health at Creighton University School of Medicine, Omaha, Nebraska, is interested in the study of patients showing an increased incidence of any histological variety of cancer in their families. Of particular interest to us is the cancer family syndrome, characterized by: 1) increased frequency of adenocarcinoma of all sites, particularly of the colon and endometrium, 2) early age at onset of cancer, 3) increased occurrences of multiple primary malignant neoplasms, and 4) autosomal dominant inheritance.

We are currently updating two large cancer families having the above characteristics who live primarily in the Midwest, in middle and northwestern Missouri, Iowa, Nebraska, Colorado, Michigan, Indiana, and Illinois. The initial phases of the investigations of the families have been published (Lynch, H. T., et al: Hereditary Factors in Cancer: Study of Two Large Midwestern Kindreds, *Arch. Intern. Med.* 117:206-212, 1966).

Physicians with patients known to have a familial cancer background may write to Henry T. Lynch, M.D., Associate Professor and Chairman, Department of Preventive Medicine and Public Health, Creighton University School of Medicine, 657 North 27th Street, Omaha, Nebraska 68131.

We invite your cooperation in our studies which will include a genealogical and medical investigation of the entire kindred in each case. All information obtained will be shared with family physicians in order to facilitate cancer control.



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**Warnings:** Use only after critical appraisal in patients with liver damage, renal damage, urinary obstruction or blood dyscrasias. If toxic or hypersensitivity reactions or blood dyscrasias occur, discontinue therapy. In closely intermittent or prolonged therapy, blood counts and liver and kidney function tests should be performed.

**Precautions:** Observe usual sulfonamide therapy precautions including maintenance of an adequate fluid intake. Use with caution in patients with histories of allergies and/or asthma. Patients with impaired renal function should be followed closely since renal impairment may cause excessive drug accumulation. Occasional failures may occur due to resistant microorganisms. Not effective in virus and rickettsial infections.

**Adverse Reactions:** Headache, nausea, vomiting, urticaria, diarrhea, hepatitis, pancreatitis, blood dyscrasias, neuropathy, drug fever, skin rash, Stevens-Johnson syndrome, injection of the conjunctiva and sclera, petechiae, purpura, hematuria or crystaluria may occur, in which case the dosage should be decreased or the drug withdrawn.

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## MINUTES OF THE COUNCIL MEETING SOUTH DAKOTA STATE MEDICAL ASSOCIATION

Sheraton Cataract Motor Inn

Sioux Falls, South Dakota

January 11, 1969, 1:00 P.M.

The meeting was called to order at 1:00 P.M. Those present for roll call were Doctors Elston, Quinn, Muggly, Reding, Tracy, Stransky, Taylor, Bartron, Lushbough, Swanson, Odland, Lietzke, Tesar, Cosand, Lowe and Brauer. Also present were Commission chairmen J. B. Gregg, M.D., and R. R. Giebink, M.D.

Dr. Reding moved that the minutes of the last meeting be approved inasmuch as they were published in the South Dakota Journal of Medicine. The motion was seconded by Dr. Swanson and carried.

Dr. Giebink briefly reported on the activities of the Commission on Communications. There were no recommendations from the Commission and no action taken by the Council.

Mr. Erickson gave the report for the Commission on Internal Affairs and reviewed the proposed budget for 1969-1970.

### REPORT OF THE COMMISSION ON INTERNAL AFFAIRS B. J. Begley, M.D., Chairman

The Budget and Audit Subcommittee met at the executive office on Wednesday, December 18, to prepare a proposed budget for 1969-1970. The meeting was attended by B. J. Begley, M.D., E. A. Pasek, M.D. and A. P. Reding, M.D.

The attached budget is presented for your consideration.

### SOUTH DAKOTA STATE MEDICAL ASSOCIATION PROPOSED BUDGET 1969-70 INCOME

Item	1969-70	Previous Year
State Dues	\$48,000.00	\$48,000.00
Annual Meeting	9,000.00	9,000.00
Refunds & Misc.	1,000.00	1,000.00
Interest	500.00	500.00
Car Reimbursement	1,200.00	1,200.00
Income Administrative	700.00	1,140.00
	<hr/> \$60,400.00	<hr/> \$60,840.00

### EXPENSES

Item	1969-70	Previous Year
Salary, Executive	\$ 7,200.00	\$ 6,600.00
Salary, Other	12,000.00	12,000.00
Social Security	900.00	750.00
Legal & Audit	3,000.00	2,600.00
Telephone & Telegraph	2,000.00	2,000.00
Office Supplies	2,300.00	2,100.00
Dues & Subscriptions	800.00	1,000.00
Physicians Travel	4,000.00	4,000.00
Annual Meeting	8,500.00	8,500.00
Public Relations	3,200.00	3,200.00
Rent	3,000.00	3,000.00
Miscellaneous	50.00	50.00
Postage	2,200.00	2,200.00
Legislative Expense	1,500.00	2,000.00
Medical School End.	200.00	200.00
Car Expense	2,200.00	2,200.00
Clinical Pathology	200.00	200.00
Staff Travel	4,300.00	4,500.00
Insurance	100.00	100.00
Employment Tax	50.00	50.00
Employee Relations	1,800.00	1,600.00
Taxes	200.00	300.00
Auxiliary Newsletter	700.00	
	<hr/> \$60,400.00	<hr/> \$59,150.00

Reserve

1,690.00

---

\$60,840.00

\*Note: No reserve established this year.



# SOUTH DAKOTA JOURNAL OF MEDICINE

## INCOME

Item	1969-70	Previous Year
Advertising	\$23,800.00	\$23,000.00
Subscriptions	800.00	800.00
Miscellaneous	600.00	600.00
Refunds	800.00	800.00
	<hr/>	<hr/>
	\$26,000.00	\$25,200.00

## JOURNAL — EXPENSES

Item	1969-70	Previous Year
Salary, Editor	\$ 720.00	\$ 720.00
Salary, Staff	3,900.00	3,300.00
Legal & Audit	200.00	50.00
Rent	600.00	300.00
Telephone & Telegraph	300.00	200.00
Social Security	120.00	55.00
Office Supplies	19,000.00	19,000.00
Postage	900.00	300.00
Travel	200.00	500.00
Employee Relations	60.00	75.00
Taxes		
	<hr/>	<hr/>
	\$26,000.00	\$25,200.00

## BUILDING FUND INCOME

Item	1969-70	Previous Year
Blue Shield Rent	\$28,800.00	\$28,800.00
Association Rent	3,000.00	3,000.00
Journal Rent	600.00	300.00
Board of Exam. Rent	600.00	600.00
	<hr/>	<hr/>
	\$33,000.00	\$32,700.00

## EXPENSES

Item	1969-70	Previous Year
Janitor & Repair	\$ 7,000.00	\$ 5,000.00
Utilities	5,000.00	5,000.00
Interest	5,000.00	4,500.00
Repayment of Loans	8,000.00	6,480.00
Legal & Audit	1,000.00	2,000.00
Taxes & Insurance	5,000.00	5,000.00
	<hr/>	<hr/>
	\$31,000.00	\$27,980.00
Reserve	2,000.00	4,720.00
	<hr/>	<hr/>
	\$33,000.00	\$32,700.00

Dr. Bartron moved that the Council recommend to the Commission on Internal Affairs that a sufficient increase in the dues structure be made to meet the proposed deficit in the Association's operation for the ensuing year. The motion was seconded by Dr. Taylor and carried. Dr. Swanson moved that the Council accept the report of the Commission on Internal Affairs. The motion was seconded by Dr. Cosand and carried.

Dr. Gregg, as chairman, presented the report of the Commission on Legislation and Governmental Relations.

## REPORT TO THE COUNCIL from the COMMISSION ON LEGISLATION AND GOVERNMENTAL RELATIONS J. B. Gregg, M.D., Chairman

Since the last meeting of the Council there have been no formal meetings of this Commission. Matters of business have been considered and meetings have been attended by members of the Commission.

On October 30, 1968, a meeting was held at the office of the SDSMA. It was attended by representatives of the South Dakota Dental Association, the South Dakota Veterinary Association and the South Dakota State Medical Association. This meeting was to consider the introduction of a jointly sponsored bill into the coming legislature of the state of South Dakota to establish and fund a scholarship program under the auspices of the state of South Dakota to help needy students and perhaps to help stimulate members of these three professions to return to South Dakota as a place to practice. Also represented in the bill will be the Osteopaths. No representative of the Osteopathic Association appeared at this meeting.

After considerable discussion the various representatives were delegated to report to their respective societies as to their sentiments relating to the sponsorship of this bill.

The North Central Conference Medical Meeting held in Minneapolis on November 2 and 3, 1968, was attended by a representative of this Commission and other members of the South Dakota State Medical Association. Under discussion were the subjects of the physician assistant-assistant physician, utilization committees, usual and customary fees and the role of the Federal Government in medicine.

A member of this Commission and other representatives of the South Dakota State Medical Association attended the Advisory Committee meeting of the Regional Medical Planning Program held in Omaha on November 7. Grant applications considered were:

1. To fund a survey program for the detection of emphysema
2. Education program to enhance the care of stroke patients

These were approved. Both of these originated from the University of Nebraska. A committee consisting of three representatives from South Dakota and three from Nebraska was appointed to study the function of this advisory committee for the Regional Medical Planning Program and to make recommendations for its improvement. The three South Dakota representatives were Paul Hohm, M.D., J. B. Gregg, M.D. and Richard Erickson.

The Chairman of this Commission attended and participated in the activities of the Continuing Education Task Force of the Regional Medical Planning Program held in Sioux Falls on October 9, 1968.

The Chairman of this Commission and the Executive Secretary of the SDSMA met with a representative of the Sioux Falls Argus-Leader on November 12 to prepare a story for that publication relating to the development of the Regional Medical Planning Program.

It has been announced to the SDSMA by a representative of the South Dakota Dental Association that the Dental Association is considering sponsoring a bill to be introduced into the 1969 legislature of the state of South Dakota to promote fluoridation of water in South Dakota. When and if such a bill is drafted the SDSMA has requested the privilege of seeing the bill so that an appropriate stand can be taken by this Association relating to the matter.

It has been brought to the attention of this Commission that Anton Petres, M.D. of Salem is academically qualified and not disinterested in the position of the Director of the State Health Department. It has been brought to the attention of the Chairman of this Commission that Mike Ogden, M.D., formerly the Director of the Indian Hospital at Pine Ridge, South Dakota, and now located in the Headquarters of the Division of Indian Health, Washington, D. C., is not disinterested in the subject of the Chairman of the South Dakota State Health Department.

The Executive Secretary of the South Dakota State Health Department has communicated with the present incumbent Director of the South Dakota State Health Department and will present information relating to this correspondence to the Council at its meeting in January, 1969.

There recently has been developed at a Sioux Falls hospital a program to train nonmedical persons such as ambulance drivers, policemen, and others, in emergency medical care. A considerable sum of money was given by the Seventh District Medical Society to assist the development of the program. At recent meetings such as the North Central Medical Conference and the Regional Medical Planning Program meetings there has been considerable discussion regarding the subject of the assistant physician or the physician's assistant. It is entirely possible that the Emergency Medical Care Program now in operation in the Sioux Falls hospital could be the nucleus around which a more comprehensive physicians' assistant training program could originate and enlarge. This could be explored and possibly funded through the Regional



Medical Planning Program of Nebraska and South Dakota. This subject should receive much thought by the South Dakota State Medical Association.

#### LEGISLATIVE PROGRAM

##### SPONSOR

1. Changes in the Medical Practice Act.
2. State Loans for Medical Students.
3. Request for additional funding and a separate budget for the Medical School.

##### ENDORSE

1. "Slow Moving Vehicle" emblem sponsored by the Farm Safety group.
2. Proposed Inhalation Therapy licensing law.
3. Fluoridation bill presented by the Dental Association.

##### OPPOSE

1. Mandatory reporting legislation.
2. "Good Samaritan Law" revisions to include "all persons."

##### OTHER

1. Abortion Bill — neither favor nor oppose but request that AMA guidelines be followed.

Dr. Giebink discussed the possibility of introducing a bill in the Legislature placing a tax on soft drinks and earmarking this revenue to support medical education in South Dakota. After lengthy discussion the Council determined that the South Dakota State Medical Association would endorse a bill placing a tax on soft drinks, earmarking this revenue to support medical education and as a supplement to the Appropriations Committee regular budget for the medical school. Dr. Stransky moved that this bill, when it is prepared, be reviewed by the members of the Commission on Legislation and Governmental Relations or those empowered to review legislation for their approval prior to endorsement by the South Dakota State Medical Association. The motion was seconded by Dr. Elston and carried. Dr. Cosand moved that the Council accept the report of the Commission on Legislation and Governmental Relations. The motion was seconded by Dr. Muggly and carried.

Dr. Richard Leander appeared to report on pending legislation for the certification of psychologists, for the information of the Council. Dr. Lushbough moved that the Council endorse this bill provided the bill does not allow psychologists to move into the area of medical practice and includes a psychiatrist on its Board of Examiners. The motion was seconded by Dr. Elston and carried. Dr. Quinn requested that the Commission on Legislation and Governmental Relations or those empowered to review legislation study this bill in its written form prior to final endorsement by the South Dakota State Medical Association.

Mr. Erickson presented the report of the Commission on Liaison with Allied Organizations.

#### REPORT OF THE COMMISSION ON LIAISON WITH ALLIED ORGANIZATIONS

David J. Buchanan, M.D., Chairman

The Commission on Liaison With Allied Organizations has met three times during this past year. We have held meetings with representatives of the Pharmacists to iron out problems of concern to them.

Our most recent meeting was with the Legal profession. We are planning with them a new type of Medical-Legal meeting. The exact details of the type of program to be offered are being worked out in committee. Dr. Phil Gross has agreed to meet with the lawyers to plan this.

December 20 of this year I will be meeting with Nursing groups to discuss proposals they wish to offer concerning nurses and intensive care setups in hospitals.

Dr. Stransky moved that the Council accept this report of the Commission on Liaison with Allied Organizations. The motion was seconded by Dr. Tracy and carried.

Dr. Tracy, as chairman, reported on the activities of the Commission on Medical Service. Dr. Taylor

moved that the Council accept the oral report of the Commission on Medical Service. The motion was seconded by Dr. Reding and carried.

Dr. Lushbough reported on the activities of the Commission on Scientific Medicine. A discussion was held concerning the \$30 charge assessed to scientific exhibitors. Dr. Quinn moved that scientific exhibitors who are members of the South Dakota State Medical Association, interns and residents, not be assessed the \$30 charge. The motion was seconded by Dr. Elston and carried. Dr. Muggly moved that the Council accept the report of the Commission on Scientific Medicine. The motion was seconded by Dr. Brauer and carried.

The Council discussed the possible appointments of members of the South Dakota State Medical Association to the various American Medical Association Councils and Committees. Dr. Lushbough suggested that the executive office obtain a list of openings on these Councils and Committees for 1970 and this list then be distributed to the twelve districts for possible recommendations.

Mr. Erickson briefly reported on the attendance at the Wyoming State Medical Association's annual meeting. Dr. Elston moved that this report be referred to the Commission on Scientific Medicine for their consideration. The motion was seconded by Dr. Taylor and carried.

Mr. Erickson briefly outlined the necessary qualifications for the Director of the State Health Department for the Council's information.

The Council discussed the use of standardized physical examination forms in all state colleges. The executive office will furnish copies of the AMA standardized form to all members of the Council; those members having access to state schools are urged to contact the proper authority and request that they utilize the AMA standardized form.

Mr. Darrell Dunn of PRO, Incorporated, outlined a Keogh Plan to the Council members and requested the endorsement of the South Dakota State Medical Association in order to solicit the doctors on an individual basis. Dr. Cosand moved that this matter be referred to the Commission on Medical Service. The motion was seconded by Dr. Stransky and carried. The executive office will ask for the opinion of Mr. Warren May, the Association's attorney, and Dr. Bartron will ask their clinic's CPA's for their opinion of this plan. These replies will then be referred to the Commission on Medical Service for their information.

Dr. Brzica appeared before the Council to outline the structure of the Department of Vocational Rehabilitation and explain some of its activities. Dr. Brzica stated that he would send a list of the consultants in the various areas throughout the state to the executive office which, in turn, will distribute the list to the Councilors.

Mr. Erickson discussed the request from the North Central Conference that South Dakota, along with other member states, provide a hospitality room at the AMA meeting. Dr. Stransky moved that South Dakota support and assist in providing a hospitality room at the AMA meetings. The motion was seconded by Dr. Tracy and carried.

The Seventh District Medical Society submitted the name of G. I. W. Cottam, M.D. for honorary life membership in the State Association. Dr. Quinn moved that Dr. Cottam be elected to honorary life membership in the South Dakota State Medical Association. The motion was seconded by Dr. Bartron and carried.

A request from Comprehensive Health Planning for the Association to assist in surveying the doctors on out-of-city referrals was discussed. Dr. Tracy moved that the Council accept the request of Comprehensive Health Planning and cooperate with a survey of South Dakota physicians on out-of-city referrals. The motion was seconded by Dr. Lushbough and carried.

The Council was charged with appointing seven members to the Board of Directors of the Medical School Endowment Association. Dr. Bartron moved



that T. H. Willcockson, M.D.; G. E. Tracy, M.D.; F. R. Williams, M.D.; Warren Jones, M.D.; E. H. Peters, M.D.; B. O. Lindbloom, M.D.; and J. A. Muggly, M.D. be reappointed to a one year term on the Board of Directors of the Medical School Endowment Association. The motion was seconded by Dr. Elston and carried.

Mr. Erickson presented background information on the Regional Medical Program Advisory Committee and the slate proposed for approval.

# **RECOMMENDATION FOR REGIONAL MEDICAL PROGRAM ADVISORY COMMITTEE EFFECTIVE JUNE 1, 1969**

## **CATEGORY                      SOUTH DAKOTA**

### Medical Schools

- (2) George Knabe, M.D.  
Warren Jones, M.D.

### Medical Educators

- (1) George Rinker, Ph.D.

### Medical Associations

- (3) Robert Quinn, M.D., Chr. Ad. Com.  
Joseph Muggly, M.D., V. Chr. Exe. Com.  
Richard C. Erickson

### Heart Associations

- (1) Gerald Tracy, M.D.

### Cancer Societies

- (1) Donald Breit, M.D.

### Practicing Physicians

- (10) Paul Hohm, M.D.  
T. R. Anderson, M.D.  
L. L. Massa, D.O.  
C. B. McVay, M.D.  
Brooks Ranney, M.D.  
John Gregg, M.D.  
Charles Gwinn, M.D.  
John Stransky, M.D.  
R. J. Bareis, M.D.  
New Association Vice President  
to be named

### Nursing

- (1) Mrs. Bea Damm

### Hospital Administration

- (1) William Murphy

### Dental

- (1) Willard Powell, D.D.S.

### Nursing Homes

- (1) Helmuth Neuharth

### Veterans' Administration

- (1) James Chalmers, M.D.

### Pharmacy

- (1) Ted Hustead

### Veterinary Medicine

- (1) Harold Severson, D.V.M.

### Physical Therapy

- (1) Katherine Gale

### Vocational Rehabilitation

- (1) Ben Hins

### Comprehensive Health Planning

- (1) Karl Wegner, M.D.

### State Department of Health

- (2) C. J. VanHeuvelen, M.D.  
Thomas Schultz

### Public

- (3) Richard Wold  
Les Hegland  
Richard Anderson

### Racial interest groups

- (2) Harold Shunk  
Lawrence Clark

Total 35

\*Maximum of 70 for both South Dakota and Nebraska

Dr. Taylor moved that the Council approve the slate as presented. The motion was seconded by Dr. Tesar and carried.

A brief discussion was held concerning the membership of doctors of osteopathy in the State Medical Association. The Council determined that no action should be taken by the State Association until the American Medical Association changes its by-laws.

The Council discussed district Utilization and Insurance Review Committees in conjunction with problems that have arisen with the Welfare Department. The executive office was directed to send a list of the members of each district Utilization and Insurance Review Committee to Paul Koren, M.D., at the State Welfare Department as soon as current listings are received at the executive office.

The Seventh District Medical Society submitted a resolution requesting the Council to ask the AMA to release a complete report concerning recent activities at AMA headquarters and make this report available to all physicians in the United States. Dr. Stransky moved that the executive office send a letter to Bur-tis Montgomery, M.D., Chairman of the Board of Trustees, American Medical Association, and request a report on the recent events for the Council's information and in answer to the Seventh District's request. The motion was seconded by Dr. Tracy and carried.

The Seventh District Medical Society submitted a resolution requesting the Council to direct the Commission on Legislation and Governmental Relations to take the resolution relating to the separation of South Dakota and Nebraska in the Regional Medical Program off the table and act on it. Dr. Lushbough moved that the resolution concerning the Regional Medical Program, in connection with separating Nebraska and South Dakota, be referred to the Commission on Legislation and Governmental Relations for re-evaluation. The motion was seconded by Dr. Muggly and carried.

The Seventh District Medical Society submitted a resolution requesting that the South Dakota State Medical Association obtain information regarding the publication of a pamphlet relating to Comprehensive Health Planning and requested that the author be invited to address the House of Delegates at its next meeting. The Council determined not to accept this resolution inasmuch as information concerning the author and the publication were made known to the Secretary of the Seventh District Medical Society at this Council meeting.

The doctors were reminded to submit nominations for the Community Service Award and the Distinguished Service Award and that these should be submitted by March 15, so they can be considered at the April Council meeting.

Mr. Erickson briefly reviewed a report from the South Dakota Health Research Institute. Dr. Taylor moved that the Council accept the report of the South Dakota Health Research Institute. The motion was seconded by Dr. Lowe and carried.

Mr. Erickson reported on the disability experience for the Harold Diers Company during the past year. The Harold Diers Company requested an appearance before the Council to discuss liability coverage for the Association on a group basis. Dr. Stransky moved that this matter be referred to the Commission on Medical Service. The motion was seconded by Dr. Brauer and carried.

Mr. Erickson reported on the special meeting of carrier representatives which he attended in Baltimore for the Council's information.

The Executive Committee in conjunction with the Governor's Blue Ribbon Committee studying the Health Department submitted the following recommendation: That the Council of the South Dakota State Medical Association cooperate with the Governor in his efforts to have an in-depth study of the Health Department and further recommends that the Public Health Advisory Committee be properly funded to carry out this study. Dr. Tracy moved that the Council accept this recommendation. The motion was seconded by Dr. Taylor and carried.

The spring Council meeting will be held in April, a definite date to be established later. The meeting time will be changed to 11:30 A.M.

Dr. Cosand moved that the meeting be adjourned. The motion was seconded by Dr. Swanson and carried.





## THE HEALTH CARE OF ATHLETES

Athletes are generally assumed to be in excellent health, rugged in nature and able to survive injuries that usually disable other individuals. As a result, this group has received a minimal amount of medical supervision in the past. Recently, more consideration is being given to them, as evidenced by the activities of the A.M.A. Committee on the Medical Aspects of Sports, and the American College of Surgeons through the state trauma committees. Almost every doctor in South Dakota is called upon at times to examine or treat these individuals.

Medical supervision should start at the beginning of the pre-season training program. At that time a thorough medical history and physical examination should be performed, emphasis being placed on previous injuries, illnesses and loss of consciousness. All athletes should be properly immunized, especially against tetanus and poliomyelitis. All coaches and trainers should be fully instructed in first-aid techniques and procedures. When these conditions have been met (and only after medical approval), active contact participation can be considered safe.

Conditioning of the players should begin early in the pre-season months, in order to insure the maximum potential of the individual. Improperly conditioned athletes are particularly prone to injury. Those exercises which are particularly apt to cause injury should be avoided e.g.

deep knee bends which may result in posterior meniscus injuries.

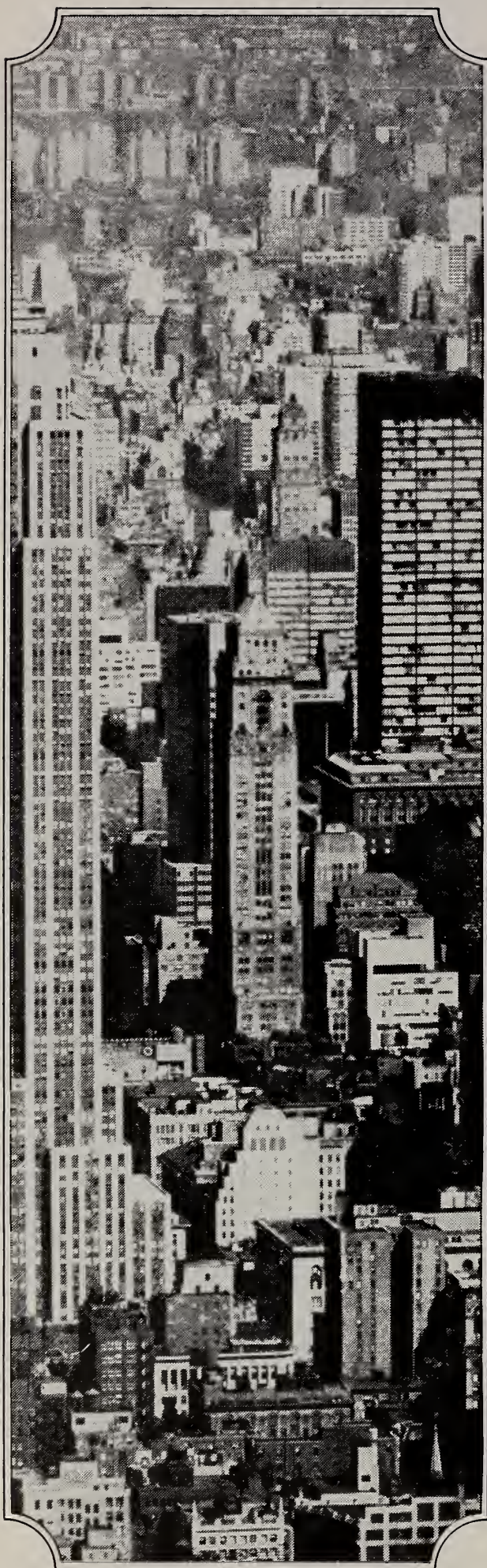
The presence of the physician during play, displays his interest in the players and assures them of prompt medical attention when needed. Most injuries are not major. Sometimes only a doctor can advise as to which injuries are minor and which are major, and which need stress X-rays in addition to the routine views. This duty cannot be delegated to individuals untrained in recognizing major ligamentous, bone and joint injuries. The publication of O'Donoghue on *The Treatment of Athlete Injuries* (Philadelphia, W. B. Saunders) gives authoritative guidelines as to the nature and treatment of these problems.

Cooperation of the coach, the trainer and the team doctor are essential in the management of the injured player. Efficient treatment and early maximum recovery are the goals. Too frequently public and alumni pressures are factors in the too-early-return to contact activity of the injured player. Invaluable service can be rendered to the recovering patient by the firm, coordinated and active direction of his rehabilitation activities.

These young men represent an important segment of our male population, and challenge the medical profession to give them maximum care.

Robert E. Van Demark, M.D.





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---

## THE MONTH IN WASHINGTON

---

A House Ways and Means Committee member introduced on the first day of the new Congress a bill that would provide federal income tax credits to help individuals buy private health insurance.

The legislation (HR 19), sponsored by Rep. Richard Fulton (D., Tenn.), was similar in principle to a health insurance financing plan utilizing tax credits approved by the American Medical Association House of Delegates at San Francisco last June and reaffirmed at Miami Beach last December.

Fulton said he considered his bill "at least an opener" for hearings.

"Certainly before expanding any federal program, I believe it worthwhile to explore the use of the private sector and our tax system," Fulton said.

The Fulton bill provides that individuals with incomes of \$2,500 or less and families with incomes of \$5,000 or less would receive \$150 vouchers from the federal government per eligible individual for the purchase of health insurance. The family maximum would be \$400.

In the case of a taxpayer with an income between \$2,500.01 and \$5,000, or a family with an income between \$5,000.01 and \$7,500, the credit would be a 75 percent per eligible individual with a maximum of \$400 per family.

In the case of a taxpayer with an income of \$5,000.01 to \$7,500, or a family with an income between \$7,500.01 and \$10,000, the credit would be 50 percent per eligible individual with a \$400 family maximum.

In the case of a taxpayer with an income exceeding \$7,500.01, or a family with an income exceeding \$10,000.01, the credit would be 25 percent.

At San Francisco, the House of Delegates adopted as approved AMA policy "the principle

of graduated income tax credits for premiums paid for adequate health insurance." A resolution adopted at Miami Beach called upon the AMA to "vigorously promote the enactment of federal legislation implementing" the plan.

\* \* \*

A special commission on health facilities concluded that government and private enterprise must cooperate to organize the nation's health resources into effective, efficient and economical community systems of comprehensive health care for all persons.

The National Advisory Commission on Health Facilities, established in October, 1967, drafted its report to the President in general terms and did not make any recommendations for legislation.

James Z. Appel, M.D., a former president of the American Medical Association and a commission member, said the family physician would be the ideal "point of entry" to a community health system but there are not enough of them.

A summary of the report included:

"America's health care systems should combine private and public responsibility. Facilities and systems will vary from community to community in accordance with local capacities and local needs, but guiding principles should govern the effort to develop effective and efficient health care systems:

- "1. These systems should be organized to assure appropriate points of entry into and continuity of health care services.
- "2. Every citizen should have ready access to quality health care.
- "3. States, regions, local communities, and all health institutions should carry out continuous planning.



- "4. Both those who provide and consume health services should participate in the decisions.
- "5. All levels of health care should be interdependent."

\* \* \*

A Health, Education and Welfare Department report to Congress recommended that preventive health care services not be added to medicare benefits at this time.

The report cited as reasons for the negative recommendation: administrative constraints, inability to estimate costs, limited experience with automated multi-phasic health screening, and an inadequate supply of health professionals.

The report was one of three requested by Congress last year and submitted before the change in Administration.

A second report dealt with coverage of mentally ill under medicare but did not include any recommendations.

The third reviewed qualifications of personnel under current medicare regulations. It stated that, because of an acute manpower shortage in the field, physical therapists should be considered qualified if they could establish an adequate level of competency. HEW is developing a proficiency examination.

HEW recommended against allowing licensed practical nurses to serve as nurses responsible for the total nursing care at an extended care facility. It also recommended against changes in the regulations that set minimal standards for independent laboratory personnel.

\* \* \*

The premium rate for medicare supplementary insurance covering physicians' fees (plan B) will remain at the present rate, \$4 each for the individual beneficiary and the federal government, until July 1, 1970.

The Johnson Administration's Secretary of Health, Education and Welfare, Wilbur J. Cohen, decided against an increase although the Social Security Administration's chief actuary had advised that an anticipated rise in physicians' fees called for an increase of 40 cents each for the beneficiary and the government.

Cohen again asked physicians to show "unusual restraint" in setting fees. He urged that physicians and patients cooperate "in eliminating unnecessary utilization of physicians services," and asked carriers and intermediaries to carefully review claims during the next 18 months.

The Food and Drug Administration proposed that six widely prescribed antibiotic drug combinations be taken off the market on grounds that they fail to live up to their claims of effectiveness.

The drugs and their manufacturers: Albamycin G. U., Albamycin-T capsules and granules, and Panalba capsules, granules and drops — Upjohn Co.; Achromycin nasal suspension — Lederle Laboratories; Mysteclin F capsules, syrup and pediatric drops and Mysteclin F-125 capsules — E. R. Squibb & Sons, Inc.

The drug companies were given 30 days to respond before FDA's final action. The FDA order could be appealed to the courts.

Two of the drug companies promptly protested the FDA proposal in public comments. An Upjohn spokesman said his company's combinations are superior to the major constituents alone. A Squibb spokesman said Mysteclin F had wide acceptance among physicians and a proper place in medical practice. A Lederle spokesman said Achromycin was not a major sales product, and declined to comment on what the company's official response would be.

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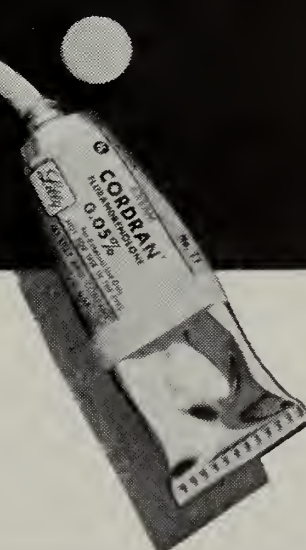
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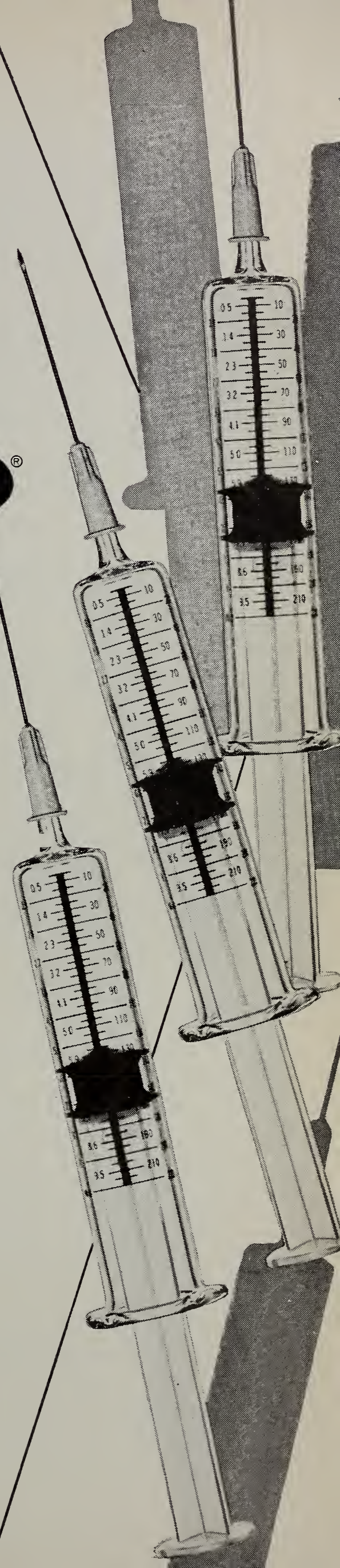
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April, 1969

Number 4

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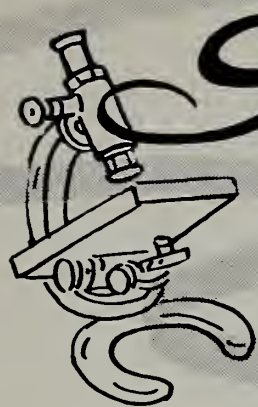
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# Scientific P A P E R

## ACUTE EMPHYSEMATOUS CHOLECYSTITIS RADIOGRAPHIC STUDY OF A CASE TREATED SUCCESSFULLY BY CONSERVATIVE MEANS

Martin Frank Petereit, M.D.\*

Acute emphysematous cholecystitis (will be referred to as AEC throughout this paper), once considered a rare infectious disease of the gallbladder, is being recognized with increased frequency. Blum and Stagg,<sup>3</sup> in 1963, estimated about 50 cases in the world literature. Marshall and Hartzog,<sup>11</sup> in 1964, stated that there were 94 cases reported in the English literature. We have recently had the opportunity to follow this disease process radiographically, i.e., to see it appear and disappear on serial abdominal roentgenograms. Also, as will be shown later, since the prevailing mode of recommended therapy is operative intervention, it is noteworthy that this case was treated conservatively with success.

### HISTORICAL ASPECTS

Welch and Flexner<sup>16</sup> found gas in the gallbladder during an autopsy in 1896. Lobinger<sup>10</sup> first reported gas in the gallbladder at operation in 1908. Kirchmayr,<sup>8</sup> in 1925, operated on a 64 year old male who had a gangrenous gallbladder distended with gas. A cholecystectomy was done and the patient recovered. Von Friederich<sup>15</sup> first described the roentgen findings in 1929. Hegner<sup>5</sup> was the first to make the pre-operative diagnosis in 1931. Wilson,<sup>17</sup> in 1958, reported the disease in a 43 year old male. On

the first day, the abdominal roentgenogram was normal. A mass was palpated in the right upper quadrant on the third day. On the sixth day, the roentgenogram revealed an enlarged gallbladder which was outlined by gas and contained gas. The patient refused operative treatment and was treated conservatively. By the twenty-fourth day, almost all of the abnormal gas had disappeared. He was discharged on the twenty-seventh day in good condition. AEC is also known as pneumocholecystitis,<sup>1</sup> acute gaseous cholecystitis,<sup>4</sup> cholecystitis emphysematosa and pyopneumocholecystitis.<sup>3</sup> This uncommon disease of the gallbladder is characterized by gas in the lumen and/or wall of the gallbladder and in the pericholecystic tissue.<sup>3</sup>

### CLINICAL PICTURE

Occasionally, AEC is the first manifestation of biliary tract disease. However, more often, there have been previous episodes of gallbladder complaints.<sup>13</sup> AEC is more common in males<sup>3, 12, 13</sup> and most cases occur in the sixth and seventh decades of life,<sup>12, 13</sup> but acute cholecystitis is more common in females.<sup>12</sup> The history, clinical symptoms, physical findings and laboratory tests mimic the usual case of acute cholecystitis.<sup>3</sup> Twenty-five per cent have a history of jaundice.<sup>2</sup> The clinical condition is almost always severe.<sup>19</sup> The patient is usually sicker than the temperature would indicate.<sup>12</sup>

\* Medical X-ray Center, Sioux Falls, South Dakota.



Thirty per cent of these patients have diabetes mellitus. Fifty per cent have a palpable mass in the right upper quadrant. The temperature varies from 99 to 103 degrees. The white blood count is usually between 10,000 and 30,000.<sup>2</sup>

### **PATHOGENESIS**

Various organisms have been cultured from the gallbladder in this disease. The most common have been *Clostridium welchii*, *E. coli*,<sup>2, 3, 11</sup> *Clostridium oedematiens*,<sup>3</sup> as well as, *Staphylococcus albus*, *Streptococci* (aerobic and anaerobic)<sup>2, 11</sup> and *Clostridium perfringens*.<sup>12</sup> According to Marshall,<sup>11</sup> bacteria may enter the gallbladder: (1) from the duodenum through the biliary ducts; (2) via the blood stream; (3) from the liver in the bile; (4) through a fistula between the gastrointestinal tract and the biliary system; and (5) via lymphatics from the liver. Number (5) is the most likely route in AEC. Seven per cent of normal gallbladders have positive cultures. With acute cholecystitis, 74 per cent of gallbladder walls and 60 per cent of stones have positive cultures.

Apparently cholecystitis does not occur only as a result of the presence of bacteria within the lumen of the gallbladder. Injury to the gallbladder wall would appear to be a more significant factor in the production of infection.<sup>2, 3, 11, 14, 19</sup> Arterial occlusion may be a factor, but Womack<sup>18</sup> has shown that the circulation between the gallbladder wall and liver is so profuse, that ligation of the cystic artery in experimental animals produces no apparent circulatory change. Other postulated mechanisms include reflux of pancreatic or gastric juice, high concentration of bile salts within the gallbladder, obstruction of the cystic duct and anoxemia of the gallbladder wall.<sup>3</sup>

Cholelithiasis is not necessarily present, but gangrene of the gallbladder is frequent.<sup>19</sup> If there is cystic duct obstruction, it is usually due to a stone.<sup>13</sup> Most of the cases that have been operated, have had cholelithiasis and some of these patients have had a stone impacted in the cystic duct.<sup>12</sup> Local injury to the tissues can result from a gallbladder stone or from a stone impacted in the cystic duct.<sup>2</sup>

Stevenson<sup>14</sup> has postulated this sequence of events: (1) lodging of a stone in the cystic duct; (2) decreased local resistance of gallbladder tissues, allowing *Clostridium welchii* to become virulent; (3) increased growth of the gas bacillus in the bile and gallbladder wall; and (4) production of gas in the gallbladder, emphysematous blebs in loose areolar connective tissue of

the gallbladder wall and extension of the infection to the pericholecystic tissues.

### **ROENTGEN FINDINGS**

It takes 24-48 hours for sufficient gas to be produced for demonstration by plain abdominal roentgenograms.<sup>13</sup> The presence of gas within the lumen of the gallbladder is thought to be the first stage of AEC. An erect abdominal roentgenogram may show an air-fluid level and/or stones within the gallbladder shadow. Within 2 or 3 days, the gas separates the mucosa from the muscularis. At this time, a concentric ring of air density is present. The fundus is usually involved first and later, the gas extends around the remainder of the organ. Still later, the gas within the lumen of the gallbladder may disappear. Soon after, gas erupts through the gallbladder wall into the pericholecystic tissues. This pathogenesis has been experimentally confirmed by Heifetz and Wyloge.<sup>6</sup>

### **DIFFERENTIAL DIAGNOSIS**

This has been well discussed in previous papers.<sup>1, 3</sup> However, the usual situations to be considered are: (1) a fistulous communication between the biliary system and some portion of the gastrointestinal tract. This may be the result of an inflammatory process or secondary to an operative procedure, such as a cholecystoenterostomy; (2) incompetence of the sphincter of Oddi. This may be intrinsic or secondary to an operative procedure, such as a sphincterotomy. As pointed out by Blum,<sup>3</sup> these two causes will result in gas in the biliary ducts with or without gas in the gallbladder, whereas, AEC rarely, if ever, shows gas in the ducts; (3) normal gas in some part of the gastrointestinal tract; and (4) an abscess with an air-fluid level not originating in the biliary system, such as, sub-hepatic abscess and high appendiceal abscess.

An extremely rare point to consider is lipomatosis of the gallbladder.<sup>9</sup> In this entity, there is fat in the gallbladder wall, no fluid level, no change in its appearance with changes in position and it appears the same from day to day.

An upper gastrointestinal series and a barium enema examination should rule out a fistula. Kerley<sup>7</sup> reported a case in which these studies failed to demonstrate a communication. However, at operation, a fistula was found between the gallbladder and transverse colon large enough to admit a finger.

### **THERAPY**

The exact treatment is in some dispute. Retterbush et al.<sup>12</sup> favor immediate operation and, if possible, cholecystectomy. They reviewed



cases treated conservatively. Some of these became worse, but some did respond well. Culver<sup>4</sup> reported a case which responded temporarily to antibiotics, but which had a recurrence of the same symptoms and gas shadows a few weeks later. Zuidema<sup>19</sup> states that most authors favor aggressive operative therapy (with cholecystectomy as the treatment of choice) plus broad spectrum antibiotics. Sawyer<sup>13</sup> reported 4 cases which were operated. Two of the patients died in the acute phase. Blum<sup>3</sup> reported 2 cases. One patient, a 39 year old male, was treated with chloramphenicol. The abnormal gas decreased over a 3.5 week period. Later, an elective cholecystectomy was attempted. Because of technical difficulties, only a cholecystostomy was performed. A culture for anaerobic organisms was negative. The patient recovered without difficulty. The other patient, a 68 year old male, had an emergency cholecystectomy and made an uneventful recovery.

#### CASE REPORT

An 85 year old male was admitted to McKennan Hospital, Sioux Falls, South Dakota, on November 27, 1967, with a 36 hour history of abdominal pain. Initially, the pain was generalized and later, it localized to the right upper quadrant. The pain was stabbing, constant, non-radiating and was associated with nausea and vomiting. There was no history of food intolerance, icterus or diabetes mellitus.

Physical examination revealed a nonicteric patient in acute distress. The abdomen was moderately rigid and very tender on the right side. This made evaluation of the abdomen difficult, however, a mass was palpated in the right mid-abdominal area. The white blood count was 20,000 with 89 per cent neutrophils. The direct bilirubin was slightly elevated. The clinical impression was acute cholecystitis.

A supine abdominal roentgenogram on the day of admission (Fig. 1) was thought to be normal. Conservative treatment was started which included intravenous fluids. Five-million units of penicillin was added to each liter of fluid. During the next 3 days, his temperature climbed to 103 degrees F. He became confused, agitated and he appeared septic. At this time (Fig. 2), a 5.5 cm. rounded soft-tissue mass (partially outlined by a curvilinear gas shadow) was seen in the right upper quadrant. No gas was evident in the biliary ducts. The gallbladder failed to visualize with iopanoic acid. Barium sulfate studies of the gastrointestinal tract did not reveal any communication with the biliary system. The diagnosis of AEC was made.

Figure 1.



Supine abdominal roentgenogram of an 85 year old white male with a 36 hour history of abdominal pain. No definite evidence of any acute process was seen. However, in retrospect, the small gas shadows in the right upper quadrant are most likely abnormal.

Figure 2.



Three days later. There is a 5.5 cm. rounded soft-tissue mass in the right upper quadrant, a portion of which is outlined by a curvilinear gas shadow. A less well defined gas shadow is seen within the area of the soft-tissue mass.



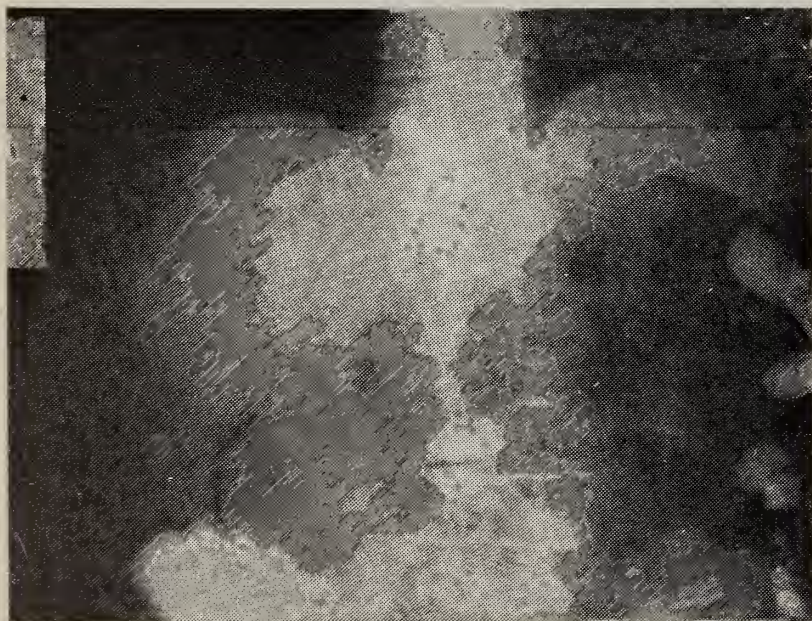
One gram of chloramphenicol was added to each liter of intravenous fluid. During the following 5 days (Fig. 3, 4, 5), the gas shadow became more prominent. However, his temperature decreased and his abdomen became softer. After one week of chloramphenicol, he showed marked improvement. Three days later, antibiotic therapy was discontinued. The patient continued to improve, but 9 days later, he developed a minimal right lower lobe pneumonia. He was treated with procaine penicillin and oral chloramphenicol for 9 days. He again responded well to antibiotic therapy.

Figure 3.



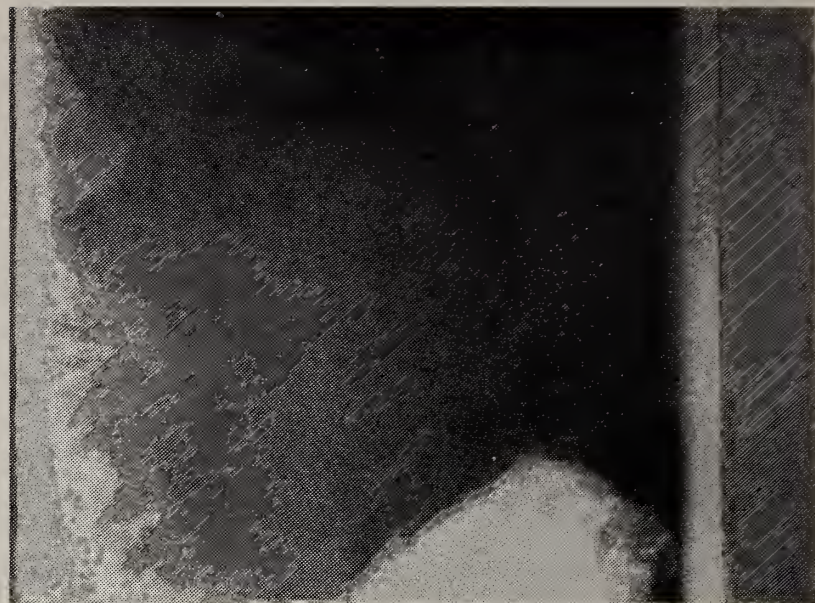
Two days later. The curvilinear gas shadow is slightly more prominent and there is more gas surrounding the upper margin of the soft-tissue mass.

Figure 4.



Three days later. The curvilinear gas shadow is now faintly visualized at the inferior aspect of the mass.

Figure 5.



Same day as fig. 4. Erect spot film. This roentgenogram was inadvertently copied incorrectly so that it appears to represent the left upper quadrant. The curvilinear gas shadow is also seen at the medial aspect of the mass. In addition, three air-fluid levels are evident superior to the mass, but none is seen within it.

Twenty-three days (Fig. 6) after the roentgenogram in Fig. 5 was taken (31 days after the initial roentgenogram in Fig. 1), the abnormal gas shadows are no longer evident. One day later (Fig. 7), an erect abdominal roentgenogram confirmed the absence of abnormal gas and a stellate radiolucency was clearly seen in the area of the previous mass. He was discharged from the hospital the same day (32 days after admission) in good condition.

Figure 6.



Twenty-three days later. The abnormal gas shadows are no longer evident.



Figure 7.



One day later (thirty-two days after the initial roentgenogram in fig. 1). This erect abdominal roentgenogram confirms the absence of abnormal gas shadows. At this time, a stellate radiolucency was clearly visualized. The fissure has been "touched up" since it was difficult to reproduce.

The patient has remained well. An abdominal roentgenogram on 2/14/68 revealed no recurrence of the abnormal gas shadows.

### DISCUSSION

Because of the patient's age and his clinical condition, a conservative approach was selected. Reports of favorable results utilizing broad spectrum antibiotics were helpful in making this decision. This gave us the opportunity to follow this disease from a radiographic point of view.

The arguments for elective cholecystectomy for cholelithiasis are well known. Since the mortality rate increases with the operative treatment of acute cholecystitis, the decision whether to operate or not, becomes more difficult.

If AEC strikes a younger patient, who is otherwise in good health, operative intervention would appear to be the therapy of choice, especially, since most physicians seem to favor this approach. However, if the patient is elderly and in borderline or poor health, it would seem reasonable to try conservative management. Chloramphenicol seems to be the drug of choice. If the patient does not respond to this regimen,

an operation may still be considered. If a conservative approach is attempted, frequent roentgenograms may be helpful in following the disease process. If the response to this regimen is successful, an elective cholecystectomy may be performed with less risk.

Our patient responded to nonoperative therapy fairly rapidly. Chloramphenicol was the principal reason for this favorable outcome.

### SUMMARY

The history, clinical picture, pathogenesis, roentgen findings, differential diagnosis and therapy of acute emphysematous cholecystitis are reviewed. This disease is being recognized with increased frequency.

A case of AEC in an 85 year old male, who was treated successfully with conservative management, is reported. Chloramphenicol was given credit for the success of this treatment program. The disease process was followed radiographically.

Although the prevailing mode of therapy, according to many authors, is operative intervention, a number of successes with conservative treatment have been reported. Therefore, in the elderly patient, who is not in good general condition, there seems to be a place for a trial of conservative therapy with a reasonable hope for a favorable outcome.

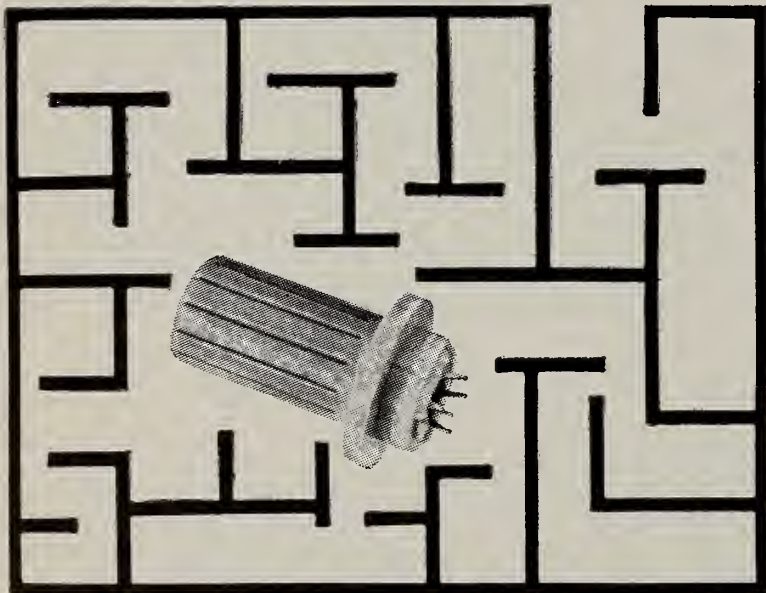
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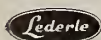
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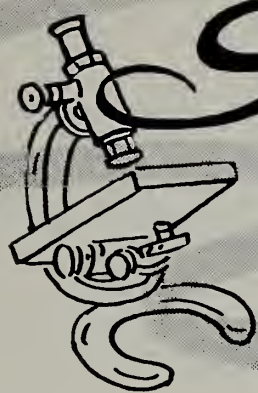
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# Scientific PAPER

## HYPERLIPEMIA FOLLOWING ALLOPURINOL ADMINISTRATION

### Report of a Case and Preliminary Animal Study\*

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#### I. Introduction

Allopurinol, known chemically as 4-hydroxypyrazolo (3, 4-d) pyrimidine, has found extensive clinical use in treatment of hyperuricemia and hyperuricosuria of diverse etiology. Allopurinol was originally introduced for concomitant utilization with mercaptopurine. It was found to reduce dosage requirements for the drug in neoplastic disease therapy.<sup>1, 2</sup> It has been employed routinely in therapy of primary hyperuricemia associated with mild to severe tophaceous gout<sup>3</sup> and that secondary to such blood dyscrasias as polycythemia vera and multiple myeloma.<sup>4</sup> The drug has also been utilized following resolution of neoplastic tissue masses by chemotherapy or irradiation preventing uric acid nephropathy.<sup>5</sup>

Allopurinol is a close structural analogue of hypoxanthine and a very effective inhibitor of xanthine oxidase.<sup>6</sup> Anti-hyperuricemic activity results by disruption of non-vital purine catabolism. Xanthine catabolism (oxidation) by xanthine oxidase has been demonstrated necessary for *in vivo* uric acid production. Blockade of

this essential step promoted reduction of serum uric acid levels by inhibition of *de novo* synthesis, not by increased urinary loss, as with uricosuric agents. Allopurinol has been oxidized, *in vivo*, to oxypurinol (4,6-dihydroxypyrazolo (3,4-d) pyrimidine) which also inhibited xanthine oxidase.<sup>7</sup> Oxypurinol has been shown to be a less effective inhibitor than allopurinol but is of considerable pharmacologic importance because of its longer half-life (See Chemical Structures: Fig. 1). It should be noted that salicylates, which often decrease uricosuric drug effectiveness, may be administered with allopurinol because serum uric acid reduction due to inhibition of *de novo* synthesis is independent of proximal renal tubular urate reabsorption or distal tubular secretion.<sup>8</sup>

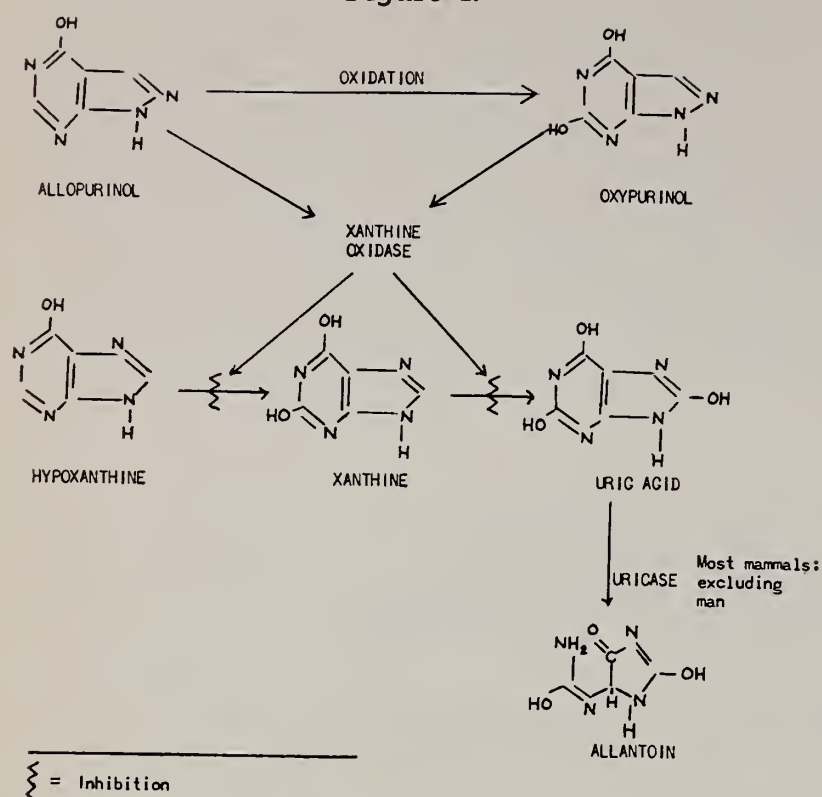
Research effort spanning a decade has resulted in elucidation of many mechanisms resulting in hyperuricemia and its apparent clinical sequela. Biochemistry of uric acid and its relation to gout has been reviewed previously.<sup>9, 10</sup> The chemistry of *in vivo* xanthine oxidase inhibition by allopurinol and its applications in treating gout and related hyperuricemic disorders have also been reviewed at length.<sup>11, 12</sup>

\* Approved by the director of the South Dakota Agricultural Experiment Station as Journal Series No. 831.

<sup>1</sup> Internal Medicine: 1320 South Minnesota Avenue, Sioux Falls, S. D. 57105.



Figure I.



Chemical Structures and Relationships between Allopurinol, Oxypurinol and Terminal Compounds in the Biosynthesis of Uric Acid.

## II. Report of a Case

A 34 year old Caucasian male, complaining of pain in both shoulders, left chest and left knee was examined initially on February 3, 1967.

### History

The patient described onset of "gout" in 1963, noting pain in the right knee, both arms and shoulders. Medical history revealed passage of a kidney stone in 1966. Therapy included phenylbutazone (Butazolidin®) and colchicine plus probenecid (ColBENEMID®). Review of symptoms was unremarkable except for nocturia times one. Family history was completely negative for arthritic complaints or other major illness.

### Physical Examination

Blood pressure was 150/105 - 110mm. Hg. pressure in both arms with a pulse of 84. H.E.E.N.T. was unremarkable; there were no eyeground changes. Heart, lungs and abdomen were negative and genitalia those of a normal male. Rectal and neurologic examinations were negative. A large, dorsally placed, tophus was present in the left elbow. Additional physical findings included tenderness and hyperemia of the left foot. Initial diagnosis of primary gout and benign essential hypertension was partly substantiated by a fasting serum uric acid of 10.1 mg.%. Subsequent laboratory findings, coupled with patient refusal to permit tophus biopsy, made definitive primary diagnosis between primary gout or essential hyperglycemia difficult.

Allopurinol 100 mg. q.i.d. and colchicine 0.65 mg. in d. began February 10, 1967 and resulted in substantial clinical improvement.

### Laboratory Data and Discussion

Initial laboratory data are presented in Table I.

Some serum lactescence was noted in an initial (postprandial) blood sample. However, on subsequent occasions it was noted that lactescence increased markedly after initiation of allopurinol therapy. Therefore, on April 20, 1967 total serum lipids were obtained (Table II) and allopurinol discontinued. Serum lipids were again analyzed on May 5, 1967. Results are shown in Table III.

TABLE I.

Laboratory Data: March 13, 1967

Uric Acid	6.8	mg. %
T3	27	%
BUN	20	mg. %
SGPT	9	units
Sed. Rate	58	mm/hour
Blood Sugar (fasting)	Within Normal	Limits
Hemoglobin	"	"
Hematocrit	"	"
White Count	"	"
Urinalysis	"	"

TABLE II.

Laboratory Data: April 20, 1967

TOTAL LIPIDS	4287 mg. % (Normal 450 - 850 mg. %)
PHOSPHOLIPIDS	876 mg. % (Normal 188 - 300 mg. % Lecithin)
TRIGLYCERIDES	2245 mg. % (Normal 50 - 200 mg. %)

TABLE III.

Laboratory Data: May 5, 1967

Total Lipids	2640 mg. %
Phospholipids	396 mg. %
Cholesterol	513 mg. %
Triglycerides	1100 mg. %
Lipoprotein	
Lipalbumin	23% (Normal 12 - 24%)
Beta	65% (Normal 36 - 59%)
Beta	= 2.9% (Normal 1.6 - 4.5%)
Lipalbumin	
Beta	= 2.5% (Normal 0.9 - 2.5%)
Lipalbumin + Alpha + Alpha <sub>2</sub>	

Reductions of total lipids (38%), phospholipids (21%), and triglycerides (51%) immediately after allopurinol withdrawal may indicate a causal relationship between its use and noted blood lipid elevations. Continued observations were not possible because the patient was lost to follow up.

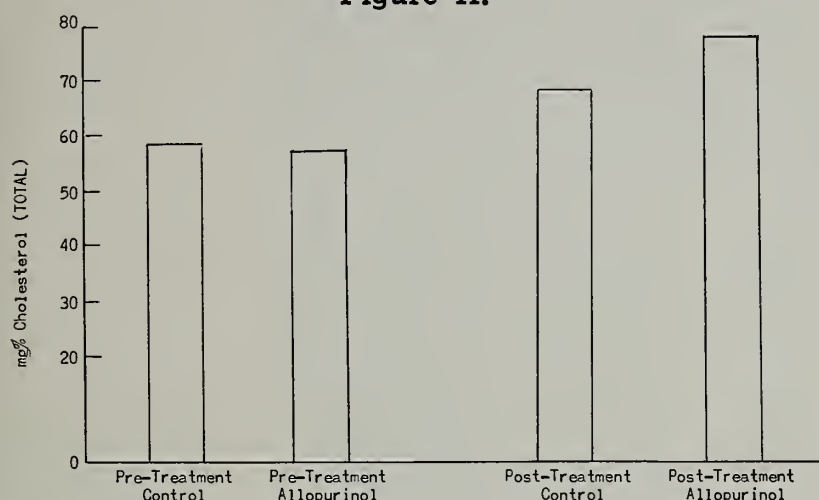
### III. Preliminary Animal Study

Results from a preliminary animal study, completed at this station, indicate an apparent experimentally provoked hypercholesterolemic hyperlipemia in rabbits administered allopurinol.



Eight adult New Zealand White virgin doe rabbits were employed as experimental and control animals. Principal animals received 50 mg. of allopurinol (oral) daily for two weeks. Blood samples were obtained by cardiac puncture for assay of pre- and post-treatment total serum cholesterol levels employing the Ferro-Ham (direct) technique.<sup>13</sup> A 17.5% increase was noted in total serum cholesterol of principal animals when compared to adjusted control group values (Fig. II).

Figure II.



Duration: 14 days  
Dosage: 50 mg/day

Total Serum Cholesterol Levels (mg.%) of Pre- and Post-Treatment Control and Experimental Rabbits.

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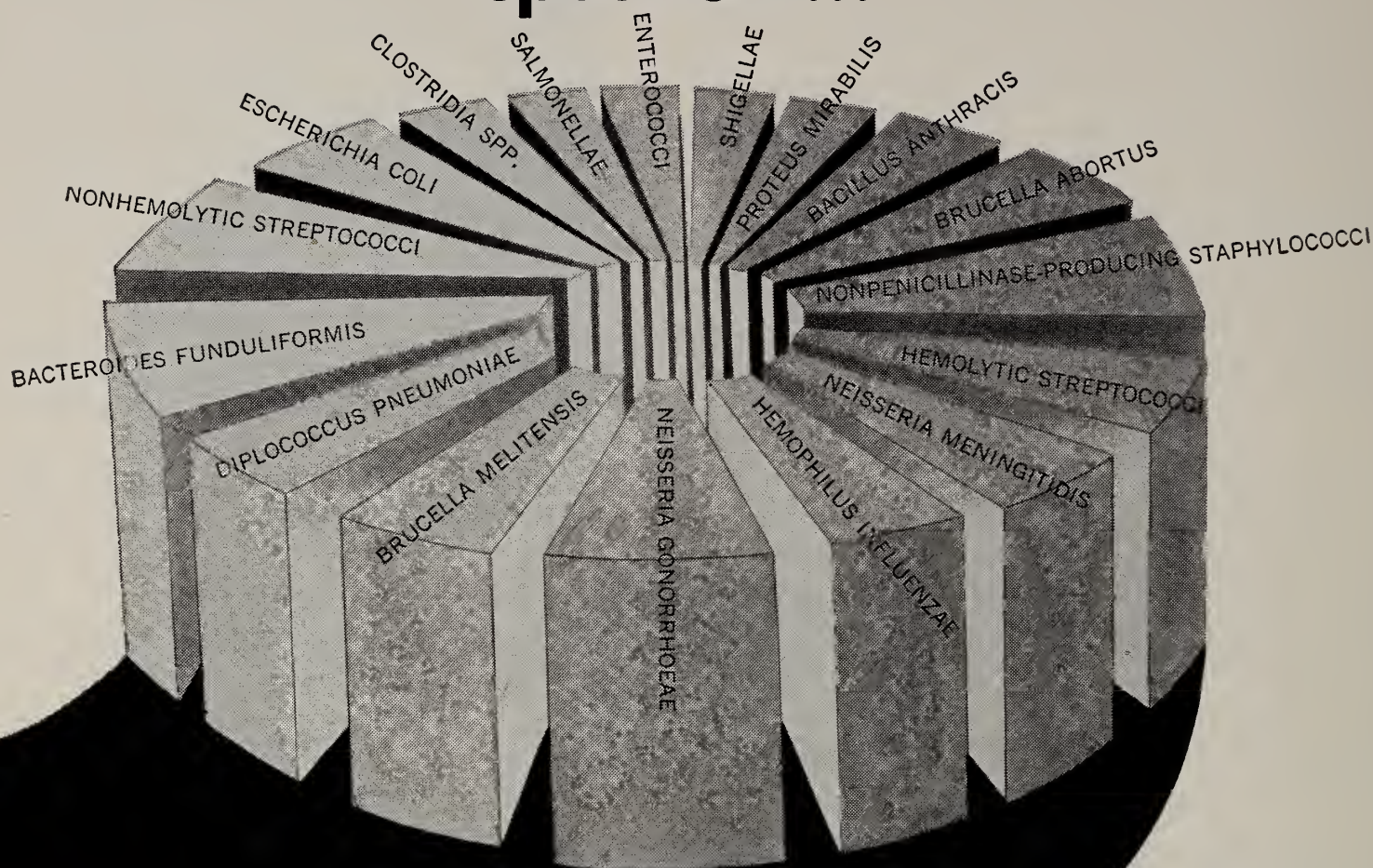
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## MANAGEMENT OF PULMONARY INSUFFICIENCY

By  
 Marvin A. Sackner, M.D.  
 Chief, Division of Pulmonary Disease, Mt. Sinai Hospital,  
 Miami Beach, Florida

Pulmonary insufficiency occurs acutely or chronically under conditions which generally include in whole or in part signs of breathlessness, obstruction of airways and retention of secretions. Institution of proper therapy calls for a prompt integration of the history, physical examination and laboratory tests.

The features of most historic significance are concerned with sputum and wheezing. For example, it is difficult to make a diagnosis of chronic bronchitis without eliciting a history of sputum production on arising in the morning. A yellow or greenish color to sputum often signifies acute bronchopulmonary infection. Sudden cessation or marked reduction of sputum volume in a patient chronically bringing up sputum may indicate retained secretions or mucoid impaction. Gradual reduction of sputum volume over months or years accompanied by dyspnea may signal the development of pulmonary emphysema. Wheezing is associated with bronchial asthma or bronchitis; it also occurs in severe congestive heart failure. Swelling of the ankles may be the result of cor pulmonale or mechanical obstruction of the inferior vena cava by depressed diaphragms. Smoking habits, occupational background and exposure to noxious gases, fumes, or dusts are helpful in establishing an etiologic diagnosis.

The decision to employ a specific means of mechanical aid to ventilation is most dependent upon the sensorium of the patient. Conservative

measures are preferred when the patient is mentally alert regardless of the disturbances in arterial blood gases. The breathing pattern is important in establishing whether reassurance, intermittent positive pressure breathing with bronchodilators or intubation are indicated. Short gasping inspirations in patients with obstructive airway disease may be caused by an anxiety reaction or acute bronchopulmonary infection. Prolongation of expiration occurs in bronchospasm and in emphysema. Occasionally, the sole sign of airway obstruction is vigorous contraction of the abdominal rectus muscles during expiration. Auscultation of the chest for wheezes, rales and audibility of breath sounds is helpful in the differential diagnosis of bronchospasm, congestion, fibrosis, pneumonitis and pneumothorax. A tracheal wheeze may result from the tracheobronchial collapse due to emphysema or to upper airway obstruction.

Analysis of the arterial blood gases is a mandatory part of the clinical examination in every patient with pulmonary insufficiency (for detailed description of arterial blood gas interpretations see Sackner, *Medical Times* 95:79, 1967). Important measurements obtained from the arterial blood analysis include pH, carbon dioxide tension ( $p\text{CO}_2$ ), base excess, oxygen tension ( $p\text{O}_2$ ) and oxygen saturation. The blood pH is normally fixed between 7.38 and 7.42. It is affected by a change in  $p\text{CO}_2$  and an accumulation of non-volatile acids or bases. Arterial  $p\text{CO}_2$  ranges from 38-42 mm Hg and is inversely proportional to alveolar ventilation. Base excess is

The South Dakota Heart Association, Prepared by the American Heart Association for this Journal.



normally zero; a positive value indicates a base excess or a non-volatile acid deficit, a negative value indicates a base deficit or a non-volatile acid excess. The base excess can theoretically be determined by titration with a strong acid to a pH of 7.40 at a  $p\text{CO}_2$  of 40 mm Hg and a temperature of 38° centigrade. In practice, base excess is determined indirectly by calculation from a nomogram using values for pH,  $p\text{CO}_2$  and hemoglobin concentration. The base excess should be considered as the indicator of metabolic and the  $p\text{CO}_2$  that of respiratory disturbances. A blood pH below 7.38 indicates acidosis. If the  $p\text{CO}_2$  is greater than 42 mm Hg a respiratory acidosis exists whereas if the base excess is less than -3 (i.e. -4, -5, -6, etc.) a metabolic acidosis is present. A positive base excess (+3 or greater) associated with a respiratory acidosis generally indicates that in whole or part the respiratory acidosis has been chronic.

The usual arterial blood gas disorders in pulmonary insufficiency involve hypoxemia and respiratory alkalosis or acidosis. Respiratory alkalosis and hypoxemia are often found in the early stages of status asthmaticus and in atelectasis. Many patients with obstructive airway disease have hypoxemia only. Chronic respiratory acidosis is usually seen in patients with chronic bronchitis alone or as the predominant disease in combined bronchitis and emphysema. Acute respiratory acidosis may occur in patients with pre-existing pulmonary diseases who have superimposed infections, retained secretions, narcotic dosage or overdosage, congestive heart failure, status asthmaticus or pneumothorax. Metabolic acidosis may complicate acute respiratory acidosis in conditions such as status asthmaticus and pulmonary edema.

A chest roentgenogram should always be obtained in patients with pulmonary emphysema who develop acute pulmonary insufficiency. In these patients, pneumothorax and pneumonitis may give few or no physical signs. An electrocardiogram should be obtained routinely since cardiac arrhythmias are frequent. A gram stain of the sputum smear should be examined immediately to help in the choice of an antibiotic.

In terms of management, we have found the following classification of pulmonary insufficiency useful. It is based on 1) the state of the sensorium, 2) obstructive airway signs, 3) signs of retained secretions and 4) acid-base balance as estimated by arterial blood gas analysis.

**Alert; Obstructive Airway Signs; No  $\text{CO}_2$  Retention.** This is probably the commonest type of pulmonary insufficiency. It is found in status

asthmaticus and in anxiety reactions in patients with pre-existing pulmonary diseases. Hypoxemia and respiratory alkalosis are generally present. Psychotherapy is by far the most important mode of treatment. The physician must repeatedly assure the patient that breathlessness will decrease if respirations are slowed and if he relaxes. The physician must remain in the patient's presence and give vocal encouragement until this is accomplished. In addition, but not as a substitute, intermittent positive pressure breathing using slow respiratory flow rates and nebulizing 4-8 drops of racemic epinephrine in 5ml IV aminophyllin solution for 15 minutes every 3 hours may be useful. If psychotherapy is ineffective, sedation must be employed using mild tranquilizers to narcotics as indicated. Intravenous steroid and aminophyllin therapy are often beneficial. If there is co-existing metabolic acidosis as in status asthmaticus, initially 1 ampule of  $\text{NaHCO}_3$  (44.5meq) should be given for every -4 to -5meq of base excess and further requirements followed by serial arterial blood gas determinations.

**Alert; Obstructive Airway Signs; Acute Respiratory Acidosis.** This condition develops in certain patients with status asthmaticus, in patients with emphysema and/or chronic bronchitis who develop a bronchopulmonary infection or anxiety reaction. These patients frequently show rapid shallow respirations and hold their chests in a high inspiratory position. Reassurance should be employed but is not as effective as in those patients without  $\text{CO}_2$  retention. These patients should be treated with intermittent positive pressure breathing until arterial  $p\text{CO}_2$  returns to normal. If bronchospasm exists, intravenous steroids and aminophyllin should be employed. Narcotics and sedation are usually contraindicated because of their depressant effects on the respiratory center. However, if the tachypnea persists and if intermittent positive pressure breathing is fought by the patient, then a trial of sedation may be indicated. This type of treatment should only be utilized if the patient is in an intensive care unit under close medical surveillance and if intubation equipment is immediately available with close monitoring of arterial blood gases. Base deficits should be corrected with intravenous sodium bicarbonate.

**Alert; Retained Secretions; No  $\text{CO}_2$  Retention.** Representative examples in this category include pneumonitis, post-operative atelectasis and acute exacerbations of chronic bronchitis or bronchiectasis. The best results in terms of



removal of secretions are obtained with chest physiotherapy. A trained chest physiotherapist performs shaking and clapping of the chest and postural drainage, and educates the patient in correct coughing. Nasotracheal suction should always be done initially by an experienced attending physician before turning this task over to nursing since it is often difficult to carry out properly. Deep breathing exercises and intermittent positive pressure breathing should be used in atelectasis. Heated aerosol is indicated for loosening secretions in large airways, the ultrasonic nebulizer for small airways. Antibiotics should be administered if the sputum is purulent. Provided the patient remains alert, bronchoscopy is usually not required.

**Alert; Obstructive Airway Signs; Chronic Respiratory Acidosis.** Patients with chronic bronchitis and/or emphysema may show this condition. The blood pH is near normal,  $p\text{CO}_2$  and base excess elevated and hypoxemia is present. If arterial  $p\text{CO}_2$  is less than 62 mm Hg with near normal pH, these patients should be maintained on intermittent positive pressure breathing four times a day, or as necessary, at home or in the hospital. Arterial  $p\text{CO}_2$  above 62 mm Hg represents an unstable condition; the patient may become acutely acidotic with minimal stresses. These patients should be hospitalized and given hourly or two hourly treatments with intermittent positive pressure breathing until  $p\text{CO}_2$  falls below 62 mm Hg. Measures must be taken to keep pH normal by correcting the co-existing compensating metabolic alkalosis with saline, ammonium chloride, potassium chloride, arginine hydrochloride or diamox as dictated by cardiac, renal and electrolyte considerations. The goal in therapy is to keep  $p\text{CO}_2$  below 62 mm Hg. while keeping blood pH normal during room air breathing; it is not to bring  $p\text{CO}_2$  down to a normal value of 40 mm Hg. It is important to ventilate these patients with oxygen concentrations not greater than 30% because respiratory center depression may occur immediately after a treatment with the respirator if higher oxygen concentrations are used. As in other patients with obstructive airway signs intravenous steroids and aminophyllin, chest physiotherapy and nasotracheal suction are useful adjuncts. This group of patients also frequently has incipient grades of congestive heart failure. Digitalis and diuretic therapy added to regimen occasionally bring  $p\text{CO}_2$  to normal and partially relieve the hypoxemia.

**Stupor; Acute Respiratory Acidosis.** This condition is most likely to occur in patients with

obstructive airway disease who have been given sedation, or develop an acute bronchopulmonary infection or have incomplete elimination of anesthetics or neuromuscular agents following surgery. These patients should be treated with continuous intermittent positive pressure breathing until  $p\text{CO}_2$  returns to normal. A volume limited respirator with a mask is preferred since leaks can be overcome by increasing the volume delivered by the machine, whereas pressure limited respirators do not cycle well if inflation pressures greater than 25 cm water need to be employed. If the latter occurs and a volume limited respirator is unavailable, then intubation with a cuffed endotracheal tube should be carried out. Bedside bronchoscopy is useful. Tracheostomy should be considered if there are copious secretions and if the patient cannot be taken off the endotracheal tube after 96 hours. Since gastric ileus occurs in many of these cases, the gastric contents should be emptied by a nasogastric tube.

**Stupor; Obstructive Airway Signs; Acute and Chronic Respiratory Acidosis.** These patients are best treated by continuous controlled ventilation by a mask using a volume-limited respirator. This can also be handled with a pressure limited respirator but one must be prepared to do more frequent monitoring of arterial blood gases and ventilation. However, intubation is usually necessary when the latter type of respirator is employed. The goal of therapy is to reach a normal pH over a 6-24 hour period, **not a normal  $p\text{CO}_2$** . Rapid correction of arterial  $p\text{CO}_2$  to normal levels with alkaline pH in these patients is associated with a fatal encephalopathy. Adjunctive therapy includes chloride replacement or bicarbonate diuresis, antibiotics, nasogastric suction and diuretics. If secretions are thick and copious and a tracheostomy employed, lung lavage should be done every 4 hours with a 5ml. solution of equal parts of intravenous  $\text{NaHCO}_3$  solution and saline.

**Coma; Respiratory Acidosis.** These patients should be bronchoscoped at the bedside, secretions removed and a cuffed endotracheal tube inserted. They should be placed on continuous controlled ventilation with a volume limited respirator. The goal of therapy is restoration of normal pH. Depending upon the base excess, replacement of chloride or bicarbonate should be carried out. Nasogastric suction, antibiotics, diuretics and tracheostomy are useful adjunctive measures.



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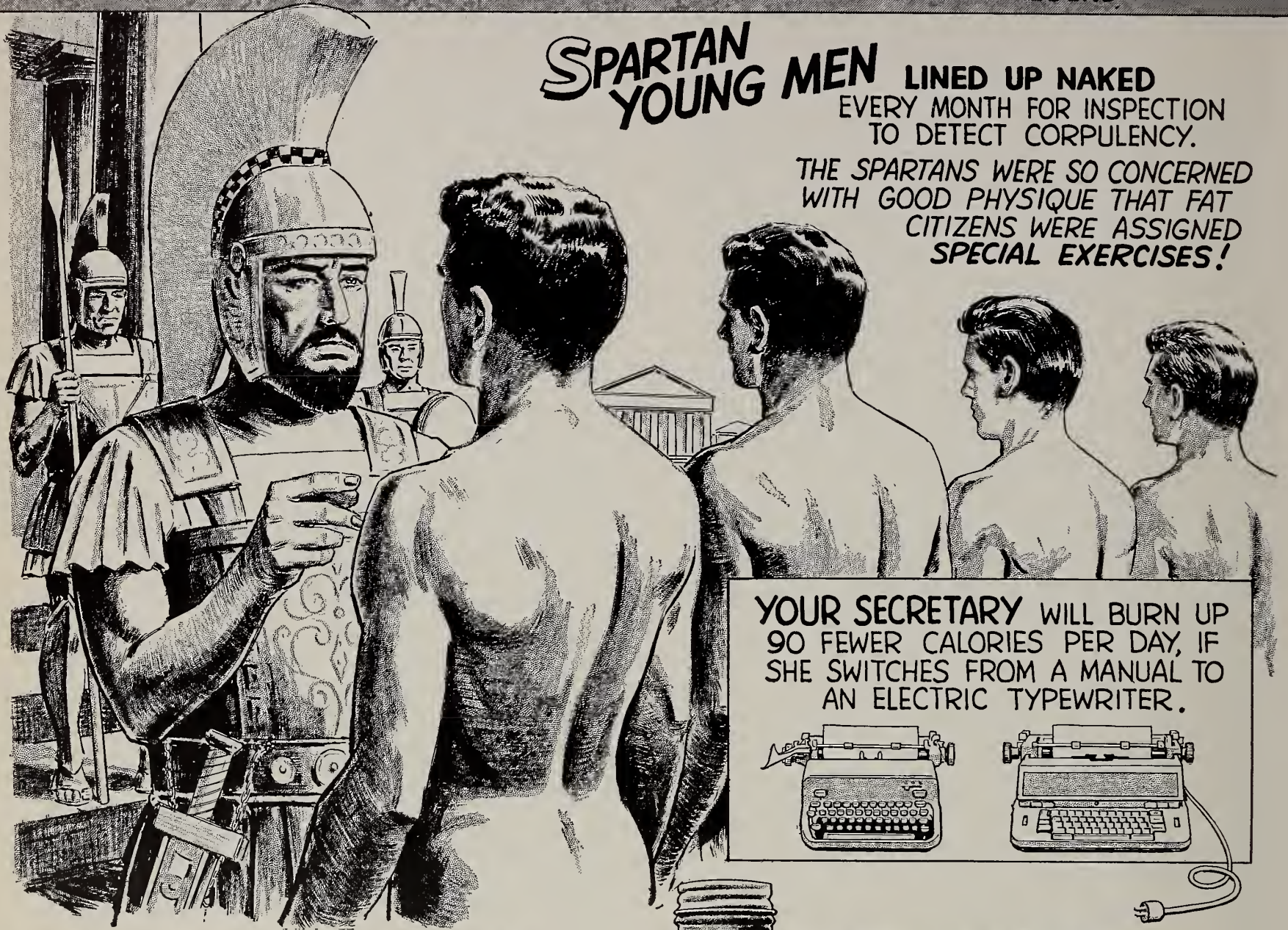
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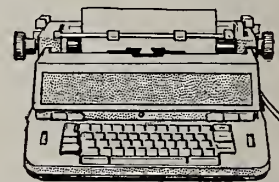
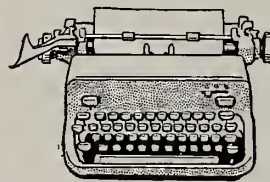
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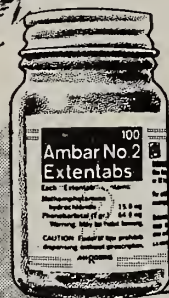


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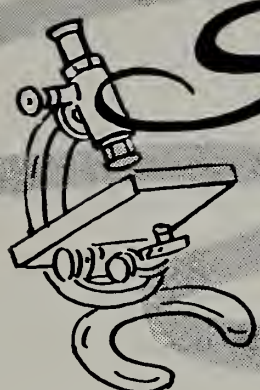
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# Scientific PAPER

## VIDEOTAPE RECORDING

By Sylvester Clifford, Ph.D.\*

Videotape recording, fast becoming a familiar sight in education and rehabilitation, is proving valuable in therapy at the University of South Dakota in our Speech and Hearing Center. For two years, the center has used a closed-circuit television system which allows monitoring within the director's office at the center, and monitoring in a classroom at another location on campus. This makes possible observation by parents or large groups and provides for commentary during observation. We have found videotape recording to be of use in unusual cases. A tape library of such cases has been started and will be expanded greatly if funds are located.

Several speech and hearing clinics around the country are making use of videotape, but I believe we are one of the first to make extensive use of it. Although there has not been time enough to form concrete conclusions as to the lasting value of videotape recording in speech and therapy, some observations are warranted.

Patients who later view videotape replays of themselves seem to get a great deal of stimulation from the viewing, and are often able (especially in the case of aphasics) to notice behavior missed when watching the playback immediately after a recording session. The greatest benefits have been for recording diagnostic sessions, and for reviewing cases on tape and then pointing out suggested changes to therapists.

The greatest drawback has been in keeping equipment in operating condition.

The "instant replay" familiar to viewers of television sportscasts also is useful in lip reading cases to point out tics and facial grimaces to stutterers and laryngectomees, and it has proved surprisingly motivating and beneficial in working with adult aphasics. Children with articulation problems are occasionally recorded on videotape. The technique appears to interest the children, but we feel a mirror is as effective and less distracting.

Last summer we purchased an Ampex VR-6000 portable videotape recorder for the clinic. The recorder and Ampex television camera allow us to record at any location where power sources are available. Although the one-inch-wide tape used by the VR-6000 cannot be transferred to broadcast recorders using two-inch tape, the portable recorder is very flexible, and it allows us to improve our techniques and broaden our usage of videotape recording. The recorder is easy to operate and certainly has proved its worth.

The camera installed with the original TV equipment at South Dakota utilizes a zoom lens and cover, and a remote pan and tilt unit control panel. Such a setup allows more flexibility in the taping of therapists and subjects while therapy is being conducted. Viewing of tapes takes place either in the director's room for a small, select group in the case of diagnosis or special demonstration, or in the classroom where

\*Director, Speech and Hearing Center  
University of South Dakota



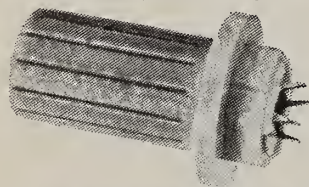
demonstrations may be viewed by large numbers of students for their required observations at a lower level of training.

A large pane of window glass shields the camera somewhat from the therapy room, and provides sound damping so that camera noise will not disturb patients or therapists. Window glass creates fewer shadows and reflections than would one-way glass and shows the patients that nothing is being hidden. A television monitor is in the camera room, facing the window, so that therapists and patients may observe it when desirable. Sound is reproduced on a separate wire and piped into the director's office, where it is hooked into another line carrying it to the outside classroom.

As time passes, we expect to make more use of videotape recording. We currently are planning research projects that may well broaden the value of television in speech and hearing therapy. These controlled studies should provide important insight into the problems we face and add to the library we hope will serve as an important source of video reference material.

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# CLINICOPATHOLOGICAL CONFERENCE

*From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Departments of Pathology of the Hospital and of the School of Medicine of the University of South Dakota*



JOHN F. BARLOW, M.D., F.C.A.P.\*  
*Pathologist-Editor*

KENDALL R. BURNS, M.D.\*\*  
*Surgeon, Discussor*

## A THIRTEEN YEAR OLD BOY WITH ACUTE PAIN IN THE RIGHT SIDE OF THE CHEST

### Case No. 68-1284

This 13-year old Caucasian male entered Sioux Valley Hospital because he was awakened at 4 a.m. by pain on the right side of the chest. The patient was well until the episode of chest pain which was sharp and over the right upper and lower chest anteriorly and laterally. The pain was increased on breathing and movement. There was no history of recent upper respiratory infection, chest trauma, chills or fever. There was no history of contact with tuberculosis. Family and past history were negative except for an old injury of the left knee.

Physical examination revealed a pale acutely ill boy. B/P 104/50; P-84 and regular; T-98; R-32 rapid and shallow. Examination of the head and neck was negative. There was splinting of the right chest and upper abdomen. There was dullness to percussion over the lower half of the right chest and tenderness to percussion on the right chest anteriorly. A pleural friction rub was heard on the right but breath sounds were obscured. The heart had a regular rhythm and no murmurs. Abdominal exam showed muscle guarding over the right upper abdomen. No tenderness, organs or masses were felt. A rectal examination was negative. A neurological examination was negative.

Admission clinical pathology data showed hemoglobin 12.7 gm%, red count 4.44 million/mm,<sup>3</sup> hematocrit 40%. Mean corpuscular hemoglobin 29 micromicrograms, mean corpuscular volume 92 cubic micra, mean corpuscular hemo-

globin concentration 32%, total leukocyte count 9,900 with 63% neutrophils, 1% neutrophilic bands, 1% eosinophils, 2% basophils, 33% lymphocytes, 1% monocytes. Red cells were normochromic, normocytic. Platelets were adequate on smear. Urinalysis was straw-colored, slightly turbid, specific gravity 1.029, pH 7.5, negative for protein, ketones and hemoglobin. Glucose was a trace. The sediment was negative. An erythrocyte sedimentation rate was 12 mm/hr. A serology was non-reactive. A Mantoux test was negative at 48 hours. Chest film showed a moderate right pleural effusion. The heart was of normal size and configuration. Two thoracenteses yielding 150 cc's of bright red blood were performed and a chest tube was inserted. Culture of the fluid showed no growth of routine bacteria, fungus, or mycobacteria. A diagnosis of hemothorax etiology undetermined was made.

The patient was admitted six months later for evaluation. In the interim he had had a mild dry cough. He had gained weight, grown in stature and was in general good condition. One week prior to admission he noted some dyspnea on exertion on lying flat. He had had no hemoptysis but had one small episode of epistaxis which was easily controlled. In the previous few days prior to admission he noted dizziness and mild fever. Chest films which had shown progressive improvement now showed a dome shaped mass in the right hemithorax. This was a definite change. Chest taps on two occasions revealed a small amount of blood, papanicolaou smear and cell blocks indicated cells suspicious for malignancy.

Physical examination revealed a well developed male lying quietly. Blood pressure

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\*\*Surgeon, Sioux Valley Hospital, Clinical Faculty, School of Medicine, University of South Dakota.



110/70, P-96 and regular, R-28, T-101.6. The trachea was deviated to the left. There were decreased movements of the right hemithorax. There were absent breath sounds and dullness on the right. Tactile and vocal fremitus were markedly increased on the right. The left chest was normal. There was no clubbing. Abdominal examination revealed no organs or masses. The remainder of the physical examination was unremarkable.

**CLINICAL PATHOLOGY DATA:** hemoglobin 12.1 gm%, red count 4.14 million/mm<sup>3</sup>, hematocrit 37%, mean corpuscular hemoglobin 30 micromicrograms, mean corpuscular volume 90 cubic micra, mean corpuscular hemoglobin concentration 33%, total leukocyte count 12,700/mm<sup>3</sup>, erythrocyte sedimentation rate 45 mm/hr, platelet count 265,000/mm<sup>3</sup>; differential - 65% segmented neutrophils, 4% neutrophilic bands, 1% basophils, 24% lymphocytes, 6% monocytes. The red cells were normochromic normocytic. Urinalysis: straw colored, turbid, specific gravity 1.024, pH 6.5, negative for protein, glucose, hemoglobin, ketones. The sediment showed 1-2 wbc/hpf and 0-1 rbc/hpf. There were no casts, occasional epithelial cells and amorphous urates. Alkaline phosphatase was 2.8 units (normal for age), lactic dehydrogenase was 1030 units. The isoenzyme pattern of lactic dehydrogenase showed an increase in all fractions and was nondiagnostic of specific organ damage. A Mantoux test was negative at 48 hours. A prothrombin time was 11.5 seconds with a 12.5 second control. A partial thromboplastin time was 19 seconds with a 22 second control. A urine VMA (vanilmandelic acid) was 12.4 mg/24 hrs. (Normal 0.5-12/24 hrs.) A urine catecholamine was 38 micrograms (normal 0-100 micrograms/24 hrs). Culture of bloody thoracentesis fluid was negative for ordinary pathogens, mycobacteria and fungus. A cell block and papanicolaou smear was interpreted as Class IV. A thoracotomy was performed.

**Dr. Burns:** First of all, I will briefly comment on the protocol. This child had a hemothorax of unknown etiology. In reading the second paragraph there is no history of trauma which is the first thing you think of with hemothorax in a child. I might add that the trauma does not have to be very significant. I have seen patients who on coughing or falling have torn an adhesion between the lung and parietal pleura and this has been the source of blood in the chest. I had a nineteen year old patient who did exactly the above. This is very unlikely in this case, however. Paragraphs two and three give us little to

substantiate a diagnosis of infection with a relatively normal white count and no fever. The sedimentation rate is not elevated to any degree. A hematogenous abscess in the lung or in the pleural cavity causing an empyema is not substantiated by the history or laboratory findings. There was no fever or chills which are usual on these occasions. The patient is out of the age group in which fulminating staphylococcal pneumonia and empyema occur. This is a disease of infants.

The patient then did well responding to conservative management. He was discharged and followed but entered six months later. I find the episode of epistaxis not very helpful as you see this in many children. However, the X-ray films now show a definite change and there are cells suspicious for malignancy on pap smears. May I see the films?

**Dr. Barlow:** Dr. Ensberg, you had something to do with the care of this patient. Would you show us the films?

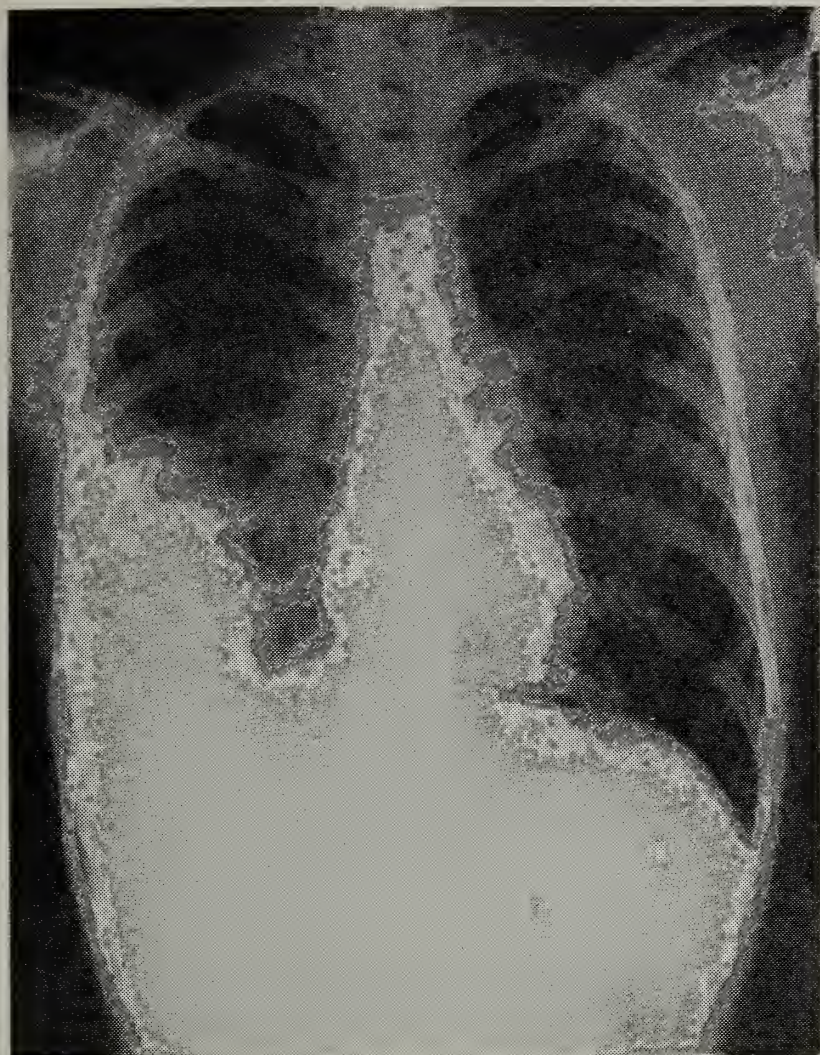
**\*Dr. Ensberg:** I might point out before showing some of these films that there were a number of social and uncontrollable factors in this case which were not brought out in the protocol. I did not see this child originally, but I think we have to realize that hemothorax in a child or even in an adult without a history of trauma is an ominous sign. Because of some of the extenuating circumstances this child was not operated on when first seen. The first films show a moderate right pleural effusion (Fig. I). You can best see some of the fluid in the picture on the lateral. These films as well as the patient did show some improvement but I think you can appreciate the new film showing this intrathoracic mass six months later (Fig. II).

**Dr. Burns:** With the abnormal cells on chest tap and the slightly elevated VMA, I wonder about a functional tumor such as a pheochromocytoma or neuroblastoma. With pheochromocytoma, a change in position may bring out a marked excretion of hormones giving rise to palpitations, hypertension and sweating. The levels of VMA in the time between attacks may be normal. There is no history of diaphoresis here. Dr. Smithwyck used to say that all pheochromocytomas had profuse sweating although I am sure that some people have argued about this. A pheochromocytoma in the younger age group is a little more common in males while in older patients it is more common in females.

\* Surgeon, Sioux Valley Hospital  
Clinical Faculty, School of Medicine, University of South Dakota



Figure I.



Early chest film showing fluid (hemothorax).

Figure II.



Later film now showing rapidly enlarging mass.

Extra-adrenal location of the tumor is not uncommon and the location does not deter me from making a diagnosis. I would like to know whether an IVP was done on this patient?

**Dr. Barlow:** Yes, it was within normal limits.

**Dr. Ensberg:** The radiologists did note some blunting of the middle pole calyces on the right suggesting an old inflammatory change but no other abnormalities in the collecting systems or ureters or displacement of either kidney were seen.

**Dr. Burns:** The bloody nature of the fluid certainly suggests a malignant process. The age group of the patient and the slightly elevated VMA again suggests a neuroblastoma or sympathicoblastoma. The ventilatory deficiency or blockage to venous return caused by the tumor may explain the dyspnea. Also, the tumors I have mentioned, frequently have spontaneous hemorrhage into the tumor and could certainly explain the patient's acute symptoms as well as the hemothorax.

I should mention some rare lesions. Sarcoma of the chest wall involving the paravertebral gutter would be a possibility. Malignant teratoma and mesothelioma are possible. A congenital cyst is very unlikely. I should also mention a ganglioneuroma which is a tumor of the nervous system which occurs in the paravertebral gutter but this is benign and I cannot find this compatible with any of the findings here. A final possibility is a hepatoma which can occur in this age group and could penetrate the diaphragm.

In summary, my first diagnosis would be neuroblastoma in an extra-adrenal location. One cannot escape the diagnosis of a rapidly growing malignancy in this case. Pheochromocytomas are usually non-malignant but can be in 10-20% of the cases. A mesothelioma or chest wall sarcoma of some variety cannot be excluded.

**Dr. Burns' Diagnosis:**

1. Neuroblastoma, extra-adrenal with hemorrhage into tumor.

**Dr. Barlow:** Dr. Nelson, do you have anything to add?

**\*Dr. Robert Nelson:** No, a child with hemothorax and a rapidly growing mass can only have a malignancy. I would agree with the diagnosis of neuroblastoma.

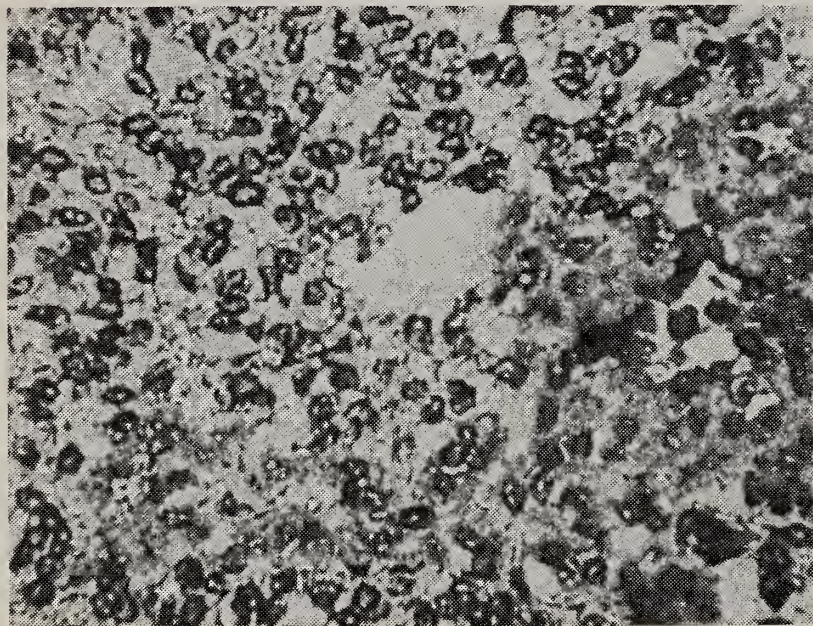
\* Surgeon, Sioux Valley Hospital  
Clinical Faculty, School of Medicine, University of  
South Dakota



## PATHOLOGIC DISCUSSION

**Dr. Barlow:** The diagnosis in this case is a neuroblastoma. The first slide shows hemorrhage and necrosis in the tumor. This explains the acute symptoms as has been pointed out. Higher power shows small dark cells with very little cytoplasm. Mitoses as well as little spaces which may represent so-called rosettes are seen. (Fig. IV). The surgical specimen consisted of fragments of the tumor. Dr. Ensberg, could you give us the findings of the thoracotomy and some follow-up on this patient?

Figure IV.



High power view of tumor. The central clear space may represent a rosette. Note the small dark nuclei with scant poorly defined cytoplasm.

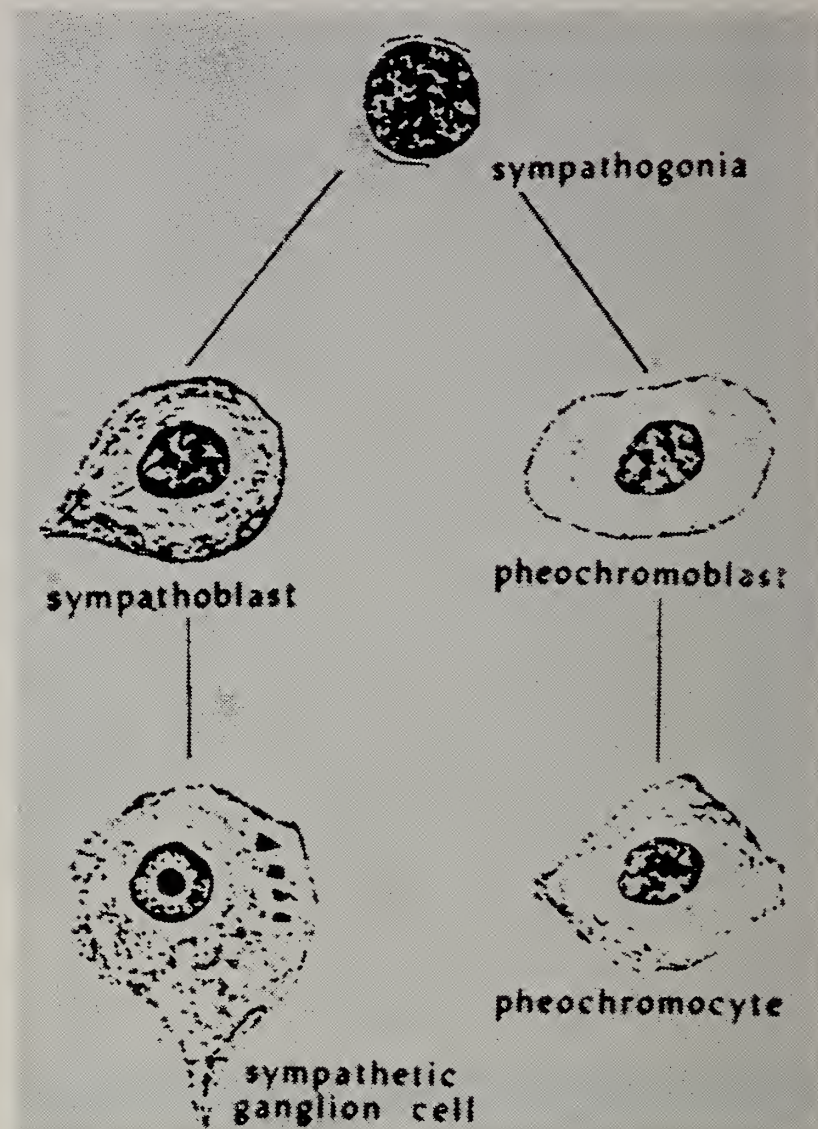
**Dr. Ensberg:** On opening the chest it was apparent that there was involvement at the level of the seventh rib by the tumor which involved both pleura and bone. The main tumor mass was about 20-25 cm. and was dissected by blunt dissection. The tumor mass was unresectable and was broken into. Soft friable tissue was sent to the Pathology. The tumor was densely adherent to the upper surface of the diaphragm and extended from the chest wall laterally all the way to the mediastinum medially. The lung itself did not appear to be involved by the tumor. Grossly I thought that it was a very cellular tumor certainly compatible with neuroblastomas which I have seen.

Since surgery, the patient has undergone a course of cobalt irradiation and has been doing fairly well. He will enter school this fall. Unfortunately, I have no great hope for a prolonged cure in this particular case.

**Dr. Barlow:** I felt now that I might discuss briefly neuroblastoma. Neuroblastoma is a

tumor derived from cells of the neural crest. Differentiation along the diagram indicated gives rise to various tumors. (Fig. III).

Figure III.



There is a differentiation of the primitive sympathogonium along divergent cell lines. The cells on the left are those concerned in formation of neuroblastomas and ganglioneuromas.

Those differentiating along lines of chromaffin tissue (pheochromocyte) give rise to pheochromocytoma and are not pertinent here. The sympathogonioma is a highly malignant tumor and is often referred to as a neuroblastoma. The sympathicoblastoma occurs in an older age group and is less malignant and more highly differentiated. It is also often included in the term neuroblastoma. A ganglioneuroma is a completely benign tumor of older children and adults and often occurs in the posterior mediastinum.

Several unusual features characterize the neuroblastoma of childhood. One is that neuroblastoma is high on the list of tumors which may show spontaneous regression. This may occur with inadequate removal of the neoplasm. This regression may be related to the unique feature of "maturation" which was first reported by Cushing and Wolbach in 1927. The



undifferentiated cells of the neuroblastoma seem to progressively form more mature and benign ganglioneuromatous tissue. Radiotherapy, partial surgical removal and vitamin B<sub>12</sub> therapy (cyanocobalamin) have all been implicated as stimulating this phenomenon. However, it must be stated that neither spontaneous regression or maturation phenomenon in neuroblastoma is well understood.

Neuroblastoma usually occurs in infants and young children. 40 to 50% arise from the adrenal medulla but they may be seen anywhere along the route of the sympathetic chain from cervical region to pelvis. Over two-thirds of patients already have metastatic disease as the presenting complaint. Proptosis of eye, bone pain or anemia occur due to skeletal involvement. This type of spread has been called Hutchinson's syndrome. Abdominal enlargement due to metastatic tumor in lymph nodes or liver is another common mode of presentation and has been called the Pepper syndrome.

Grossly the tumor is gray white with hemorrhage and necrosis. Microscopically, small dark cells with scanty cytoplasm and many mitoses are seen. In metastatic lesions to bone, it is difficult to differentiate neuroblastoma from a primary Ewings tumor.

One recent helpful biochemical aid in diagnosis has been the discovery that neuroblastomas secrete catecholamines. Although more sophisticated studies measuring dopamine and homovanillic acid are often necessary to get the highest percentage of positive results, more commonly available procedures such as total catecholamines and VMA (vanilmandelic acid) in urine often show elevations. Variations in the level of these metabolites are also one way of assessing the effectiveness of surgery or chemotherapy and in following patients for possible recurrences. The level of VMA and catecholamines was not elevated in this case.

There are a number of factors affecting the prognosis of these tumors.

First, is the location of the tumor. Best results have been obtained with mediastinal lesions since these are well circumscribed. In the more common abdominal tumors, better results occur with tumors arising from the adrenal medulla than in those in a paravertebral location. This is probably because of the usual impossibility of completely resecting paravertebral tumors.

Second, the histology of the tumor also affects the prognosis. The more undifferentiated sympathigonioma has a worse prognosis than sympathicoblastoma. A mixture of neuroblastoma

and ganglioneuroma is the most benign of the tumors lumped into the neuroblastoma category.

Third, the more extensive the metastasis the worse the prognosis. However, because neuroblastoma may undergo spontaneous regression, patients with extensive disease may do well. Neuroblastomas spread by:

- a) local extension
- b) to lymph nodes through lymphatics
- c) Hematogenously to liver, bone, and lung.

Patients with extensive metastatic disease of bone do not respond well to any modality.


Fourth, the age of the patient seems to be a factor in survival. Children under one year of age have a survival of 40-60% for 14 months or longer. Children over two years have a survival of only 7.5% for 14 months.

Fifth, surgical, radiation and chemotherapy with cyclophosphamide and vincristine have all met with some good results.

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A STATEMENT BY  
The Committee on Disaster Medical Care  
Council on National Security — American Medical Association  
Regarding

## EMERGENCY MEDICAL SERVICES DURING CIVIL DISTURBANCES

The Committee on Disaster Medical Care and the Council on National Security of the American Medical Association urges that the state and component Medical Societies and their membership give serious consideration and planning to the special emergency medical, and health services required during civil disturbances.

While recent experiences so far, suggest that these unfortunate community catastrophes do not place an undue burden in terms of casualty load on the treatment facilities or the medical care services of professional staffs of the involved hospitals, undisciplined emotions and convergence of law enforcement, military, and others involved, unfamiliar with health and medical procedures, may seriously hamper the delivery of emergency medical services. Since community planning frequently neglects to coordinate health and medical services with other emergency planning, the medical and allied health professions must assume early and effective leadership in any joint effort to prepare for such community disturbances.

The Committee on Disaster Medical Care and the Council on National Security therefore recommends that state, county and metropolitan medical societies together with appropriate representation from allied health agencies together with local agencies for maintenance of law and order where civil disturbances may occur, establish a joint leadership (Council on Emergency Medical Services) to assess and plan health and medical services at every level. Such action to result in the coordination of emergency health and medical services with all other emergency services and planning within the community.

On the basis of reported experience so far, the Committee and Council presents the following guidelines for the development of capability within the medical and health community to ensure adequate medical and health services during civil disturbance.

### Communications

1. The establishment of an Emergency Medical Operations Center to provide active coordination of health agencies with themselves and other community emergency organizations.

2. The establishment of effective communications systems (telephone hot lines, radio) between hospitals and the Community Emergency Operations Center or the Emergency Medical Operations Center and local police. Also with the military command post should armed forces detachments be ordered in.

3. The establishment of a communications system for ambulances.

### Facilities — General

1. The assignment or establishment of casualty reception centers at hospitals selected by geographical or emergency service capability; such units to be suitably protected by adequate security at the facility as well as access routes to the institutions. The general public should be made aware of the existence of the reception centers through radio, television and news media at the time of the difficulty.

2. The designation of certain hospitals outside the prospective trouble zone for the management of ordinary or regular medical emergencies and health services. Information on the location of these units also needs to be funneled to the community as noted above.

3. The development of a system of back-up or support facilities for both types of hospitals described in 1 and 2.

4. The establishment of first-aid or "forward" medical units where indicated and as time permits.

### Facilities — Specific

1. A review and revision of the hospital disaster plan and re-education and retraining of personnel as necessary.

2. The preparation of plans for the evacuation of areas and wards nearest the emergency department and operating room within the hospital.



3. The establishment of a separate and secured unit for the treatment of prisoners.

4. The development of one or more resuscitation units in or near the emergency department.

5. The proper identification of hospital operational areas, internal and external casualty routes, news information center, etc.

6. The designation of the emergency or admissions entrance as the only entry and exit point to the facility. All other entrances should be secured. Adequate guards must be posted within medical installations to prevent sabotage of emergency medical services.

7. Because mace, tear gas, etc., cling to clothing and remain potent, the emergency room may be inactivated by the exposure of hospital personnel. Clothing should be removed and patients washed down outside the emergency department if possible. Facilities for marking and storage of such contaminated clothing must be provided separate from the usual storage facilities. As an alternative, marked increased ventilation would be required with care taken to exhaust air from the emergency room to the outside and not recirculate the same air into the hospital ventilation system.

### **Procedures**

1. The establishment of mechanisms to adjust the emergency department to provide a continuous sorting process extending over a period of days, and a readjustment of the hospital disaster plan to ensure long term, continuing services.

2. The development of special medical care procedures for both ambulatory and hospital patients. In this regard, professional staffs need to review and refamiliarize themselves in the management of all forms of trauma related to civil disturbances, and the established policies with reference to the use of drugs, antibiotics, prophylaxis, the management of shock, treatment of tear gas ophthalmia, head injuries, etc.

3. The establishment of arrangements with the coroner or medical examiner in regard to responsibilities and procedures for the disposition of the dead (Notification of next of kin, arrangements for autopsies, etc.)

4. The development of an accurate record system to include: Type of injury, cause, location of wounds or injuries, salvage of bullets, violation of drug usage, patient remarks and mode of transportation to the hospital. This highlights the need for a full time secretary to be added to

each triage team and in the emergency care facility.

5. A consideration of all medico-legal aspects of civil insurrection, i.e., a set of recommendations from the Hospital Attorney.

6. The development of policy in regard to the discontinuance of elective admissions and services, and the early discharge of ambulatory patients.

7. The establishment of identification procedures for medical and health personnel entering and leaving the facility as well as the area. These must be well established and known to all security forces. Perhaps they should be routinely worn by ambulance and emergency care personnel. Implied in this recommendation is the need for the designation of access routes to and from the facility, the development of a sound security system for personnel. Traffic control is generally essential and must be planned for.

The development of secure resupply procedures between hospitals and/or regular suppliers of blood, intravenous fluids, antibiotics, vaccines, etc.

### **Summary**

The requirements for effective emergency, health and medical services during civil disturbances have not been unique or stressful upon the health and manpower resources of a community. So far, experience has not indicated that these are a disaster in the usual sense and that emergency departments and operating rooms are taxed to their full capacities. Unfortunately this situation can change and plans for full scale disaster should be kept in readiness.

While a "build-up" or "incubation" period usually permits some preparation, a planned and coordinated program with attention to the specific problems of these unfortunate human events can reduce the unusual mechanisms of interference with medical functions.

Emphasis in these emergency efforts should be related to the coordination with the over-all community preparedness, to the establishment of an Emergency Medical Operations Center, to inter-ambulance and hospital communications as well as to law enforcement central headquarters, to security and protection for hospital and medical operations, to personal identification, procedures for health personnel, to the care for prisoner casualties and to the secure resupply program for continued hospital operations.



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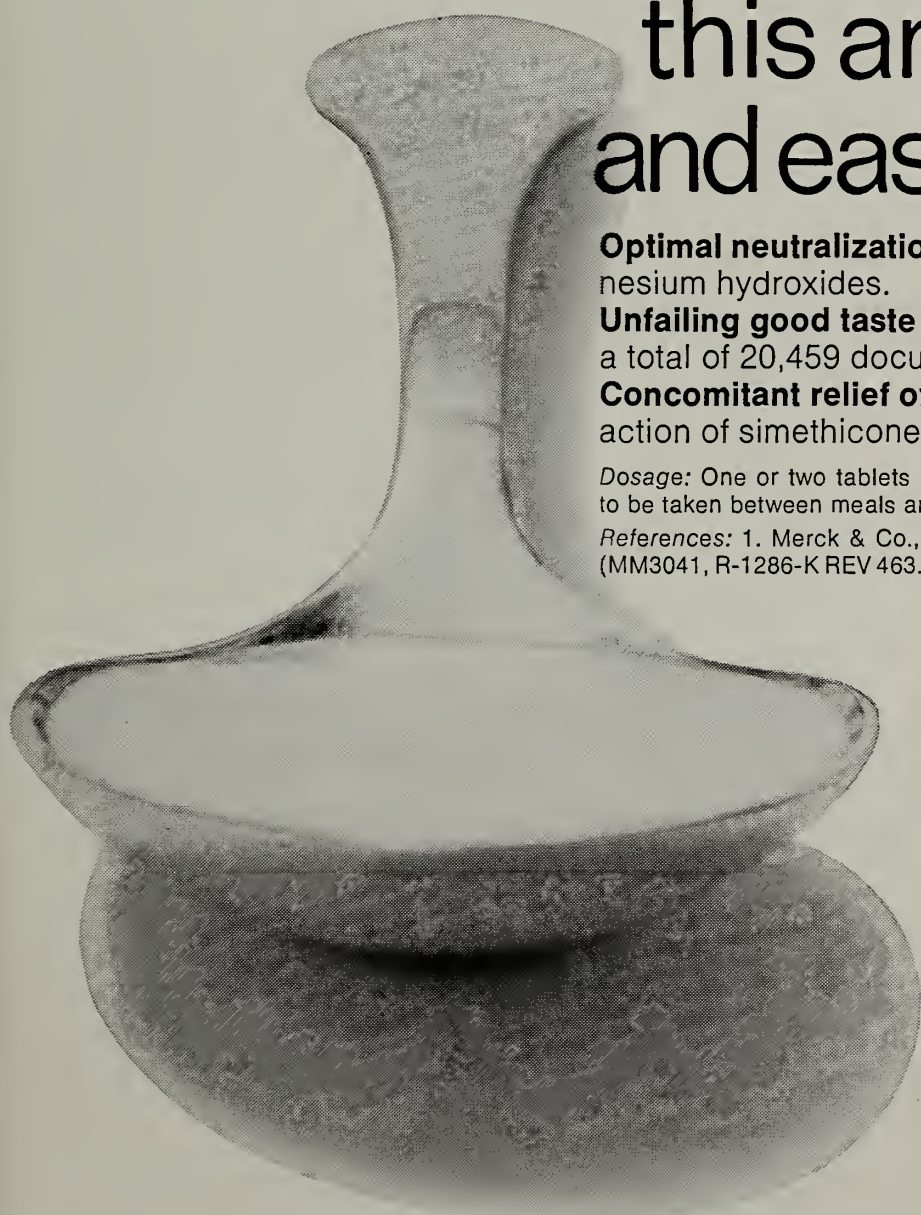
*Dosage:* One or two tablets (well chewed or allowed to dissolve in the mouth); one or two teaspoonsful to be taken between meals and at bedtime, or as directed by physician.

*References:* 1. Merck & Co., Merck Chemical Division: Antacid Literature Survey, Rahway, New Jersey. (MM3041, R-1286-K REV 463.) 2. Danhof, I.E., report on file. 3. Hoon, J.R.: Arch. Surg. 93:467 (Sept.) 1966.

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When a patient is identified as an Army member, on active duty, notification should be made immediately by telephone to the appropriate Army headquarters, as listed below, reporting where the individual is and the nature of the treatment required. The cost of the telephone call will be reimbursed with the other charges.

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## LETTER TO THE EDITOR

February 24, 1969

Mr. Richard Erickson, Executive Secretary  
South Dakota Medical Association  
711 North Lake Avenue  
Sioux Falls, South Dakota 57104

Dear Mr. Erickson:

The University has received your thoughtful gift for the Science Fair.

On behalf of the entire University community, I want to thank you for your interest in The University of South Dakota.

Sincerely,  
Richard L. Bowen  
President

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## ANNUAL MEETING NOTICE

SDSMA members are WELCOME and are urged to attend all meetings of the House of Delegates, though they do not have the privilege of the floor except as the House may suspend the rules.

ANY MEMBER OF SDSMA HAS THE RIGHT TO SPEAK AT ANY OF THE REFERENCE COMMITTEE MEETINGS HELD BETWEEN THE FIRST AND SECOND REGULAR HOUSE OF DELEGATES SESSIONS.

Plan to attend the 1969 meeting and make your thoughts known.

WATERTOWN, SOUTH DAKOTA

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## ANNOUNCEMENT

The 15th Annual Meeting and Lecture Series of the Flying Physicians Association will be held June 15-20, 1969, at the Lake Placid Club, Essex County, New York.

Robert L. Wick, Jr., M.D., of Columbus, Ohio, is program chairman. Top authorities in aviation safety and aerospace medicine will address the doctor-pilots.

Founded in 1954 by a handful of doctors, the FPA has grown by leaps and bounds. Today, the organization has some 2,000 members and is international in character.

Doctors interested in joining the Flying Physicians Association or attending the 1969 annual meeting should write: Mr. Albert Carriere, Business Counsel, Flying Physicians Association Headquarters, 801 Green Bay Road, Lake Bluff, Illinois 60044.

## ANNOUNCEMENT

Ophthalmologists and members of allied disciplines are invited to submit manuscripts on theoretical, experimental, or clinical subjects as well as reports of regional or national society meetings to the newly founded Annals of Ophthalmology.

The new journal has been founded:

To publish the many worthy papers that present ophthalmological journals printed in the English language must of necessity reject for lack of space.

To reduce the great time lapse between submission of papers and their publication thus expediting the availability of information. The editors will endeavor to publish manuscripts within six months of acceptance.

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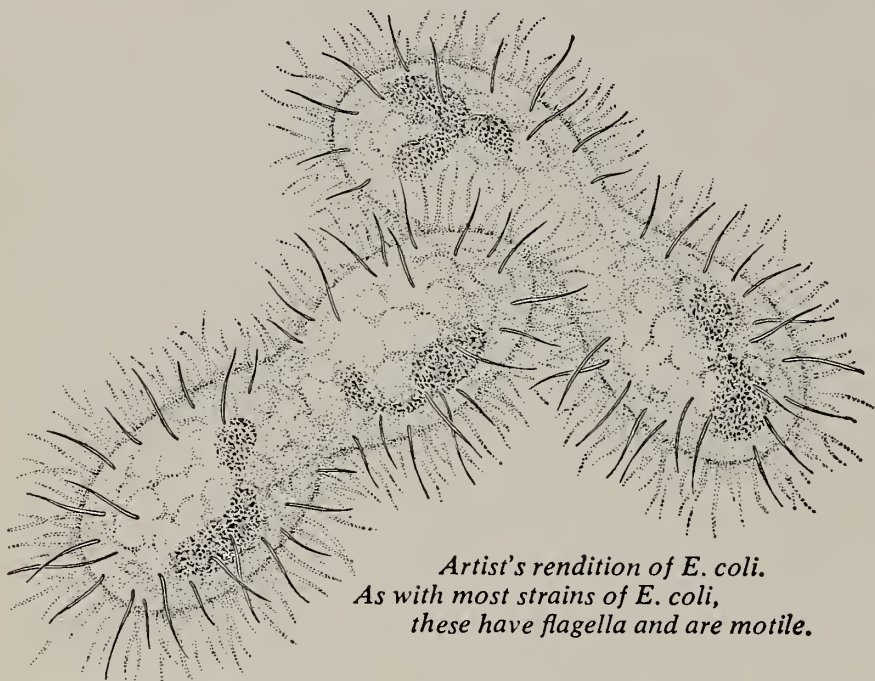
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# P R E S I D E N T ' S P A G E



Dear Fellow Physicians:

The concept of health planning under the Comprehensive Health Planning Act and amendments (PL 89-749) is catching on and groups of consumers of medical services are awakening to this new program and becoming involved in its development and progress. Physicians, as providers of medical services, must become deeply involved by lending their experience, knowledge, and talents to this planning effort. Each member of the Association is urged to familiarize himself with Comprehensive Health Planning and to assume a role of leadership and responsibility in the planning activities which are bound to grow and develop in the future.

John T. Elston, M.D.  
President



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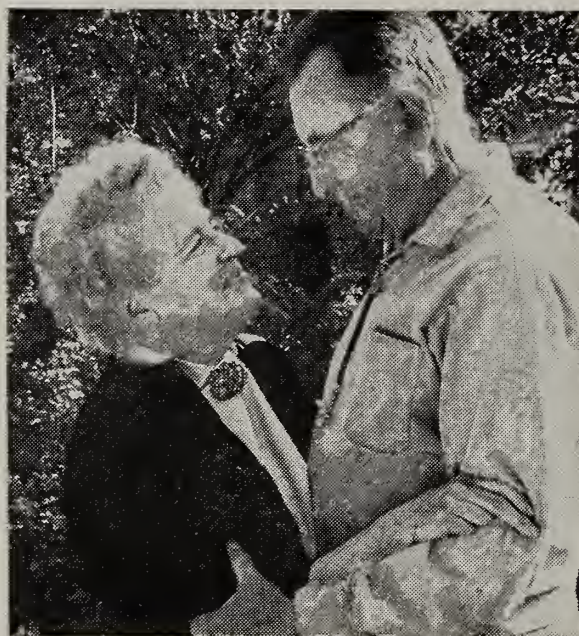
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# MEDICAL ASSOCIATION

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News Notes • Changes • Births • News

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## Pop's Proverb

Don't squeeze the "goose of the Golden egg" too hard, for you might come up with only a handful of "feathers."

**Henry M. Parish, M.D.**, 42, has been appointed associate dean of the University of South Dakota Medical School and will assume his duties July 1. Dr. Parish received a B.S. degree from Wake Forest College in 1949, an M.D. degree from the University of Pennsylvania in 1953 and a doctorate in public health from Yale University in 1959. He is presently director of graduate studies in public health at the University of Missouri School of Medicine in Columbia, Missouri.

\* \* \*

**E. S. Watson, M.D.**, Brookings, was re-elected president of the Brookings Area Guidance Center's board of directors.

The South Dakota Society of Internal Medicine named **H. Streeter Shining, M.D.**, Rapid City, delegate to a regional meeting of the American Society of Internal Medicine in Scottsdale, Arizona.

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Members of the Whetstone Valley District Medical Society elected officers for 1969. They are **Dagfinn Lie, M.D.**, Webster, president, and **Joseph Kass, M.D.**, Rosholt, secretary. **E. H. Heinrichs, M.D.**, Watertown, spoke on the medical aspect of the Head Start Program at the February meeting.

\* \* \*

**J. T. Cowan, M.D.**, Pierre, spoke on "New Hope for RH Mothers and Babies — Rho Gam" at a meeting of the District 4 South Dakota Nurses Association.

\* \* \*

The Custer City Council appointed **F. E. Manning, M.D.** to the position of city health officer.

\* \* \*

**Myron Jerde, M.D.**, Rapid City, gave a special lecture on "Gastroscopy" at the V.A. Center in Hot Springs for interested medical personnel.



**B. R. Skogmo, M.D.**, Mitchell, participated in a panel discussion at the Mount Vernon PTA regarding the Davison County Mental Health Clinic.

\* \* \*

**R. R. Giebink, M.D.**, Sioux Falls, has been named Outstanding Physician for 1968 by the Governor's Advisory Committee on Employment of the Handicapped.

\* \* \*

**G. J. Mangulis, M.D.**, Philip, announced a \$1,000 Ilga Mangulis Memorial Nursing Scholarship. The scholarship was awarded to Dianna Cudmore who will enter the school of nursing at Augustana College in Sioux Falls.

\* \* \*

Members of the Brookings United Retirement Center elected **Walter Patt, M.D.** to its board of directors.

The River Park Center Corporation in Pierre, a non-profit alcoholic center for women, elected **B. O. Lindblom, M.D.**, Pierre, to its board of directors. **Edward R. Spicer, M.D.**, Aberdeen, is a member of the Advisory Committee for the center.

\* \* \*

#### ANNUAL MEETING PROGRAM SELECTED

Scientific speakers for the 1969 annual meeting to be held in Watertown, South Dakota, June 7-10, have been selected. Following is a list of guest speakers and the titles of their presentations:

James T. Hartman, M.D.,  
Cook County Hospital,  
Chicago, "Sports Injuries"

Fred J. Ansfield, M.D., Uni-  
versity of Wisconsin, Mad-  
ison, "Newer Develop-  
ments in the Chemother-  
apy of Solid Tumors"

Keith S. Henley, M.D., Uni-  
versity of Michigan, Ann  
Arbor, "Fluid and Elec-  
trolyte Problems in Cir-  
rhosis"

Thomas J. Moulding, M.D.,  
National Jewish Hospital,  
Denver, "The New Role of  
the Practicing Physician  
in Tuberculosis Control"


Eugene F. Bernstein, M.D.,  
University of Minnesota,  
Minneapolis, "Current  
Practice in the Manage-  
ment of Dissecting Aneu-  
rysms of the Aorta"

John M. Opitz, M.D., Uni-  
versity of Wisconsin, Mad-  
ison, "Genetic Syndromes"

M. Robert Wilson, M.D.,  
Mayo Clinic, Rochester,  
"Illicit Use of Psychedelic  
Drugs in Adolescents and  
College Students"


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## THE MONTH IN WASHINGTON

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A Federal Communications Commission proposal to ban cigarette advertising on radio and television put the issue squarely before Congress again.

In 1965, Congress outlawed any federal or state controls on cigarette ads as a provision of the legislation that made mandatory that cigarette packages carry the warning: "Caution: Cigarette Smoking May be Hazardous to Your Health." Proponents of the electronic advertising ban contend that the package warning doesn't make enough impact.

Even before the FCC announcement, some members of Congress were saying that the provision outlawing federal and state controls over cigarette advertising should be allowed to expire on June 3. However, congressional reaction to the FCC ruling was mixed.

The American Medical Association House of Delegates, at its meeting in Miami Beach last December, declined to approve a resolution condemning cigarette advertising on TV. Instead, it adopted a resolution urging that AMA members "play a major role against cigarette smoking by personal example and by advice regarding the health hazards of smoking." The adopted resolution also made it Association policy that the AMA "discourage smoking by means of public pronouncements and educational programs" and "take a strong stand against smoking by every means at its command."

Anticipating censorship charges — which came promptly from the tobacco and broadcasting industries, and some members of Congress, the FCC said in announcing its proposal:

"We believe that in the case of such a threat to public health, the authority to act is really a duty to act. We stress again that our action is limited to the unique situation and product;

that we are unaware of any other product commercials calling for such action, and expressly disclaim any intention to so proceed against other product commercials."

\* \* \*

A nationwide increase in deaths from pneumonia was attributable to the Hong Kong flu epidemic, the federal government reported.

"Pneumonia-influenza deaths increased over what was expected normally over the time the flu epidemic was active," Public Health Service Surgeon General Dr. William H. Stewart said, adding the deaths included all kinds of pneumonia and that the increase was "almost universal across the country."

The National Communicable Disease Center in Atlanta said pneumonia-influenza deaths are one measurement of the severity of a flu epidemic. Reports from 122 cities during the eight weeks ended February 1 show 5,270 more pneumonia-influenza deaths than the number normally predictable during that period. The epidemic then was "on a downtrend," according to the SDC.

\* \* \*

Robert H. Finch, the new secretary of Health, Education and Welfare, is giving health care costs a high priority in tackling the department's problems.

Even before he was sworn in as secretary, Finch made an unannounced call on chairman Wilbur D. Mills (D. Ark.) of the House Ways and Means Committee, which has jurisdiction over HEW's medicare and medicaid programs. Finch afterwards said his staff would confer with Mills' staff to consider legislation or regulations that could combat higher health care costs.



"His staff and my people are going into this to see what we can do about the skyrocketing costs — especially hospitalization where 70 per cent of the costs are labor," Finch said.

The former California lieutenant governor said he was thinking about the pilot program in his native state — which he called a paramedical program — whereby long stays in the hospitals are shortened by putting people in intensive care centers. If hospital stays could be shortened, he said, "massive savings would result."

Mills was reported as favoring broadened medicare benefits or hospital care to cover disabled workers, who, by nature of their disabilities, receive Social Security payments — but because they are under 65 — are ineligible for medicare. He also was reported to be concerned over increases in hospital charges and doctors' fees.

Several members of Congress have expressed concern over increases in the federal costs of medicare and medicaid. The Johnson Administration's budget for fiscal 1970, starting next July 1, allots \$6.9 billion, up \$636 million, for medicare and \$3 billion, up \$600 million, for medicaid.

A bill, introduced by Sen. George Aiken (R. Vt.), with Senate Majority leader Mike Mansfield (Mont.) and Sen. Winston Prouty (R. Vt.), as co-authors, would do away with the present "usual and customary charge concept," place all physicians on assignment, and reimburse them through the average payment for the same service provided by the local Blue Shield. Deductibles and co-insurance would be eliminated, among many other changes.

The Labor Department reported that medical costs, including both hospitalization and physicians' fees, rose 7.3 per cent for the calendar year 1968.

Finch said the Nixon Administration's HEW budget requests would be about the same size as the \$17.5 billion submitted by the Johnson administration, but that there would be changes within the over-all total. Estimated total federal spending in the health field will rise to \$18.3 billion.

HEW said that national spending for health care, both government and private, continued to rise in fiscal 1968. The total for 1968 was \$53.1 billion, \$33.7 billion private and \$19.4 billion government. This compared with \$47.9 billion (\$32.2 billion private and \$15.7 billion gov-

ernment) for fiscal 1967. In fiscal 1960, it was \$26.4 billion — \$20 billion private and \$6.4 billion government.

\* \* \*

The Defense Department will call up 437 physicians, 23 osteopaths and 25 optometrists in 1969 in the lowest doctors draft in seven years. The total of 485 medical men compared with 1,126 drafted in 1968, 2,329 in 1967, 2,596 in 1966 and 2,830 in 1965.

The stabilization of the buildup of forces associated with the Vietnam war and with a large number of volunteers made it possible to keep the doctors draft low, the Pentagon said. All of the physicians will go into the Army. Some of the osteopaths and optometrists will go into other services. None will go into uniform until July.

\* \* \*

The National Research Council charged that most ambulances in the U. S. are not "providing emergency care to the critically injured." It cited a lack of equipment, supplies and trained attendants.

The Council said that "hearses and station wagons, commonly used as emergency vehicles," do not carry the necessary equipment or provide the space for such equipment "for the carrying out of modern resuscitative procedures either at the scene of an accident or during transportation." It said "action must be taken to develop and enforce nationwide standards for ambulance service," because accidental injuries are the leading cause of death during the first half of a person's life span.

"Only 10 states have statutes prescribing the equipment to be carried by an ambulance, and the federal guidelines for motor safety do not cover the special features necessary to safe transport of the critically ill or injured," the council reported.

The National Research Council is a subsidiary of the National Academy of Sciences, an organization created by a congressional charter in 1863.

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April 15, 1969

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Signed: R. E. Van Demark, M.D.  
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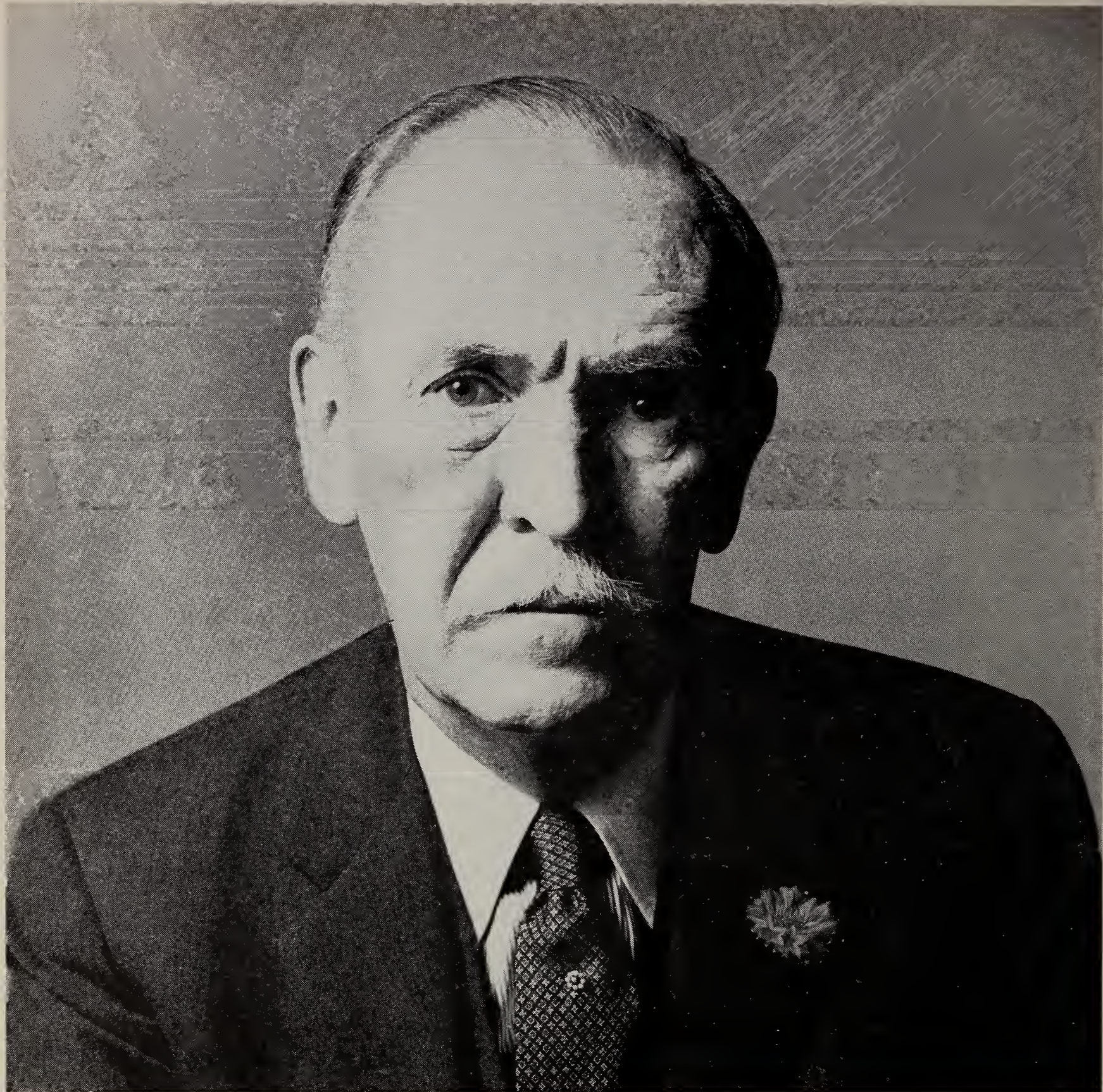
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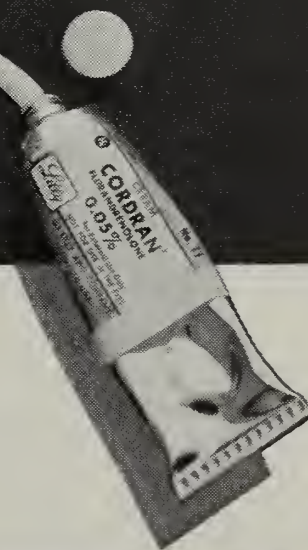
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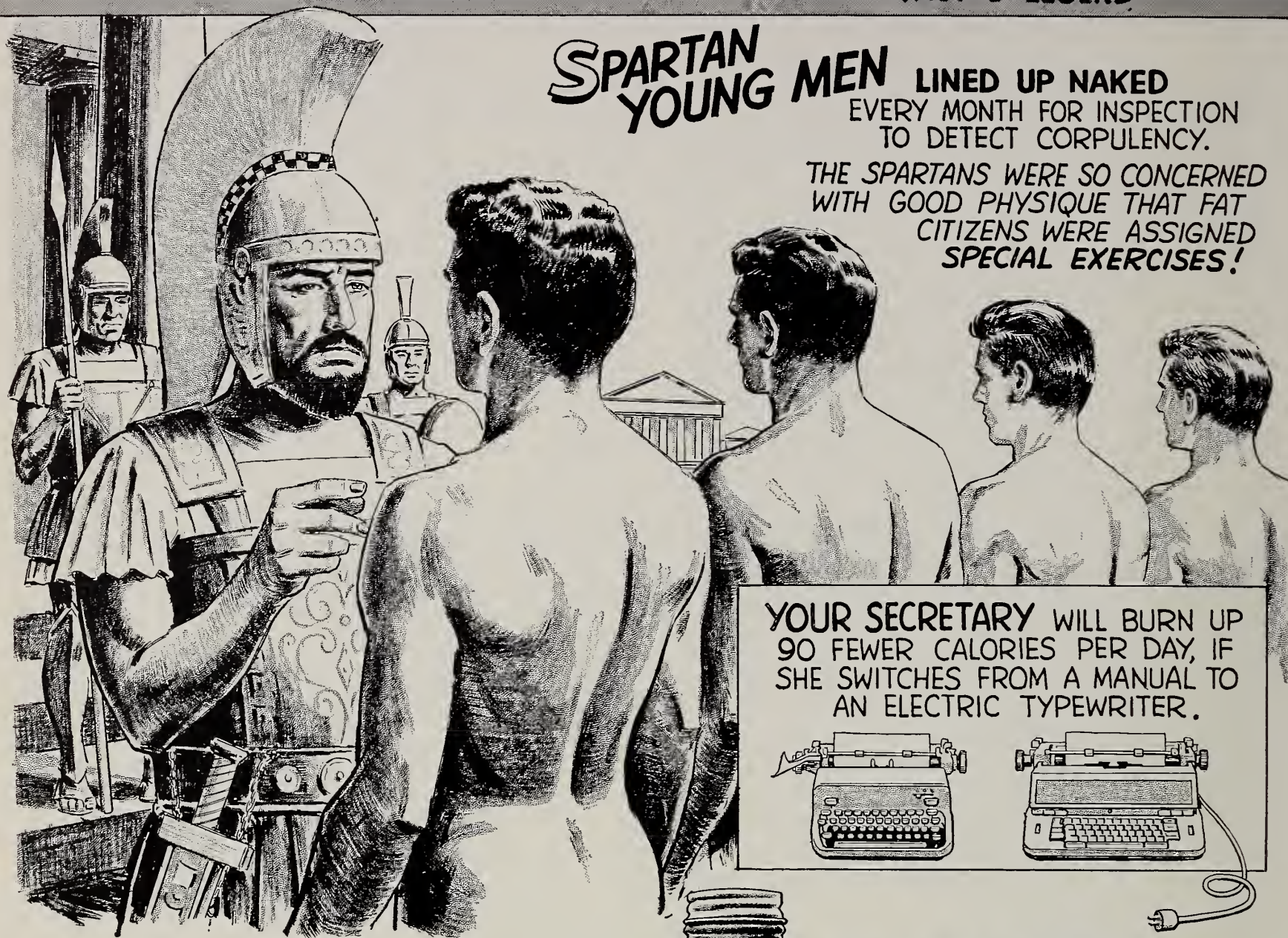
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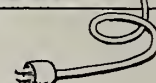
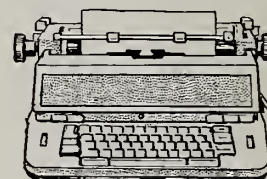
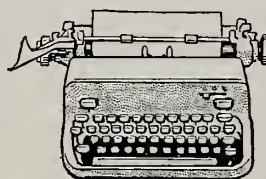
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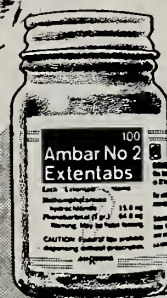
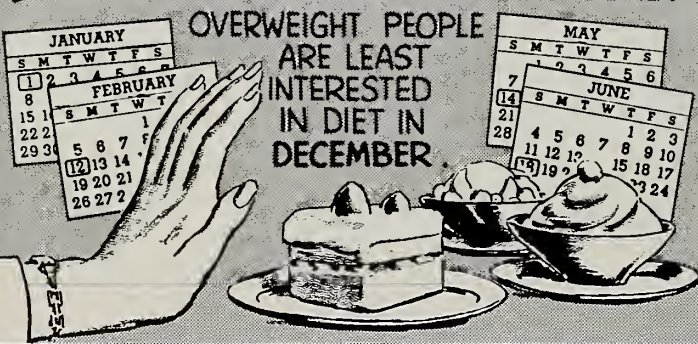


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# Scientific

# PAPER

## DIAGNOSIS OF HIP DISEASE IN INFANTS AND CHILDREN<sup>1</sup>

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Rochester, Minnesota

The diagnosis of hip disease in the newborn and the young infant is more difficult than in the older child because the latter can walk (and therefore can limp) and can also complain of pain and often localize it somewhat (usually to the wrong place, however). Also, the various conditions and diseases of the hip vary in incidence in the infant as compared to the older child. Diagnosis of hip disease in the infant depends more on the physician than it does on the patient. An alert physician, a careful physical examination, and good roentgenograms are needed to make the diagnosis.

### Infants

**Congenital Dysplasia or Dislocation.** — The most serious hip disease in the infant, as far as frequency is concerned, is congenital dysplasia or dislocation of the hip. If the physician does not examine the infant specifically for this condition, it is overlooked. There is no pain and no limp.

The cardinal signs of congenital dysplasia or dislocation of the hip are a shortened femur and limited abduction. The latter may not always be present in the newborn, probably due to the persistence of maternal "relaxing hormone" in the infant's circulation. Later, however, limited abduction of the hips does become evident. For this

reason, it is important to check abduction of the hips in the newborn and again at approximately 6 weeks of age (Fig. 1).

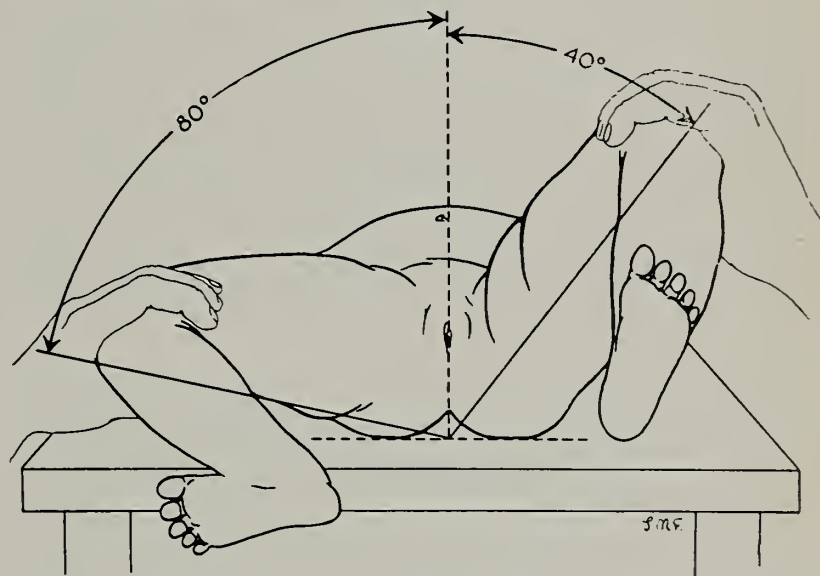


Fig. 1. Hip abduction test, showing limited abduction of left hip and normal right hip.

As far as the roentgenogram is concerned, there are only two factors that are really essential. First, Is the hip dislocated or not? Second, Is the socket adequate or not? A child may have a shallow, dysplastic acetabulum without a dislocation (this is congenital dysplasia of the hip), or the socket may not only be shallow but, in addition, the femoral head may be subluxed or dislocated from the socket (Fig. 2). Roentgenograms are difficult to interpret in the newborn because the capital femoral epiphysis cannot be seen on them for the first six months of life.

\* Mayo Clinic and Mayo Foundation: Section of Orthopedic Surgery.

<sup>1</sup> Presented at the Annual Meeting of the S. D. State Medical Association, Aberdeen, S. D.



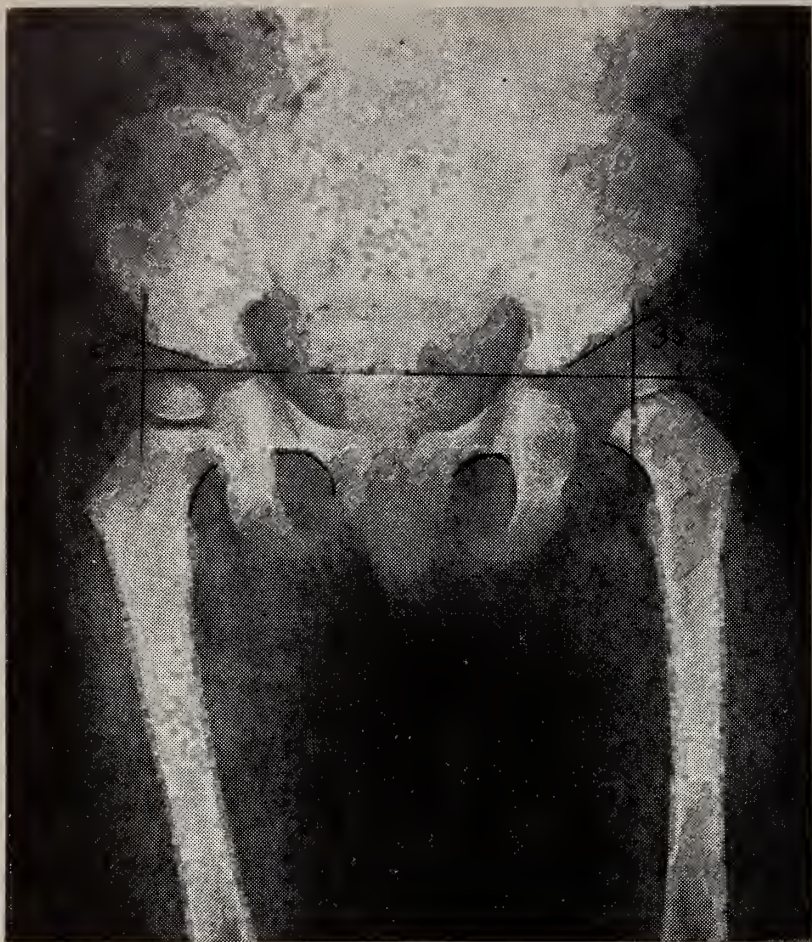


Fig. 2. Dysplasia of left acetabulum with subluxation of femoral head. Right hip is normal.

**Acute Septic Arthritis.** — The peak incidence of this condition occurs at 1 to 2 years of age. Septic arthritis is usually secondary to a blood-borne infection or bacteremia. Most of these children have a history of a preceding upper respiratory tract infection, otitis media, urinary tract infection, or furunculosis of the skin. In the newborn period, the history of an arterial puncture to obtain a blood sample is often a significant factor, with introduction of the infecting organism with the needle.

In newborns and infants, acute septic arthritis is more common in the hip than in any other joint, and the organism is usually *Staphylococcus aureus*. The diagnosis again requires an alert physician. The infant may have a fever (temperature up to 104 or 105 F) with malaise, anorexia, and marked irritability. Pain in the hip, often with marked limitation of motion, is severe — in fact, it is often confused with paralysis of the limb. In addition, there is local swelling of the hip area with increased warmth and tenderness. Unfortunately, in some infants there may be no localizing signs but rather the child is brought to the physician because of a "failure to thrive," with a flexion contracture and swelling of the leg or a paralyzed leg with very little fever or other symptoms. The older child may limp or refuse to use his leg.

The roentgenogram may reveal an increase in the joint space with some bulging of the joint

capsule. Osteoporosis of the area with destruction of bone is often evident only as a late sign. More often than not, there may not be any positive roentgenographic findings in the acute stage of the infection.

The essential procedure in the diagnosis of acute septic arthritis is aspiration of the joint to obtain material for Gram stain and culture. Obviously, this should be done early in the course of the disease. In fact, this condition should be considered as an emergency and aspiration should be performed without delay.

During aspiration of the joint, if purulent-appearing material is obtained, the joint is thoroughly flushed with sterile saline and aqueous penicillin (several million units) is left in the joint. This aspiration must be done under aseptic conditions, preferably in the operating room.

If the history indicates that the infection in the joint has been present for several days or if there is roentgenographic evidence of damage to the joint, it is preferable to open and drain the joint, using indwelling suction and instillation catheters. In addition, systemic administration of appropriate antibiotics in high dosages is begun. The lower extremity should also be immobilized in a splint or in traction to prevent flexion contracture and to also distract the articular surfaces of the joint to prevent pressure necrosis.

**Birth Fracture.** — This, fortunately, is one of the rarer injuries of the hip in infants. The child may often appear irritable and have a low-grade fever. His thigh is flexed and hip motion is limited, or at times the extremity may even appear to be paralyzed. There may be no roentgenographic findings on examination shortly after birth but, once the femoral capital epiphysis appears in the roentgenogram (several months later), a definite coxa vara position is noted, with the epiphysis displaced inferiorly in relation to the femoral neck. If this condition is suspected shortly after birth, it is proper to splint the hip in a Frejka splint and treat it as one would treat a congenital dislocation of the hip.

#### Older Children

Hip diseases in older children are somewhat different from those in the infant. Some of the conditions seen in children have existed since infancy but are not detected until the child begins to walk and promptly begins to limp. Congenital dislocation of the hip is one of the common conditions that is not detected until the child begins to walk. Acute septic arthritis also



is a real problem in older children, and the diagnostic features are essentially the same as those described for infants.

**Acute Synovitis.** — One of the more common conditions noted in children is acute synovitis of the hip. Acute synovitis may be inflammatory or traumatic and actually may be no more than a "sprain" of the hip. It may or may not be a precursor of Perthes' disease. However, because the vast majority of children with transient synovitis recover completely, it is unlikely that it is a precursor of Perthes' disease in every instance.

Children with acute synovitis often give a history of preceding upper respiratory tract infection or sore throat or have a history of trauma. Usually, acute synovitis of the hip is a self-limiting condition. Most children improve and get well in 8 to 10 days. The patient is usually a boy, 5 to 10 years old, who complains of hip pain which gradually increases until rather severe spasm and flexion deformity of the hip develop. Fever may be present but is usually not as acute or as severe as in a patient with acute septic arthritis. There is usually no leukocytosis or increase of the erythrocyte sedimentation rate. However, aspiration of the hip may be necessary to rule out possible septic involvement of the joint. Roentgenograms are usually interpreted as normal. The child usually recovers after a period of bed rest and traction and usually stays well once he recovers. However, because of the possibility of Perthes' disease, any child who is thought to have acute synovitis of the hip and who does not improve within a few weeks should be reexamined.

**Rheumatoid Arthritis.** — This condition is difficult to diagnose in children because it often is confused with septic arthritis or with transient synovitis of the hip. The onset of the disease often is not as acute as in septic arthritis. The child is generally not as ill and not as febrile or toxic. The involved joint or joints may be warm and swollen but in general are not as hot as an acutely infected joint. Swelling usually does not extend beyond joint limits as it often does in septic arthritis in which swelling of the entire extremity may occur. In children with rheumatoid arthritis, the knee is involved more commonly than the hip. However, rheumatoid arthritis is frequently monoarticular in children and may involve only the hip. Aspiration and synovial biopsy may be required to make an accurate diagnosis of rheumatoid arthritis.

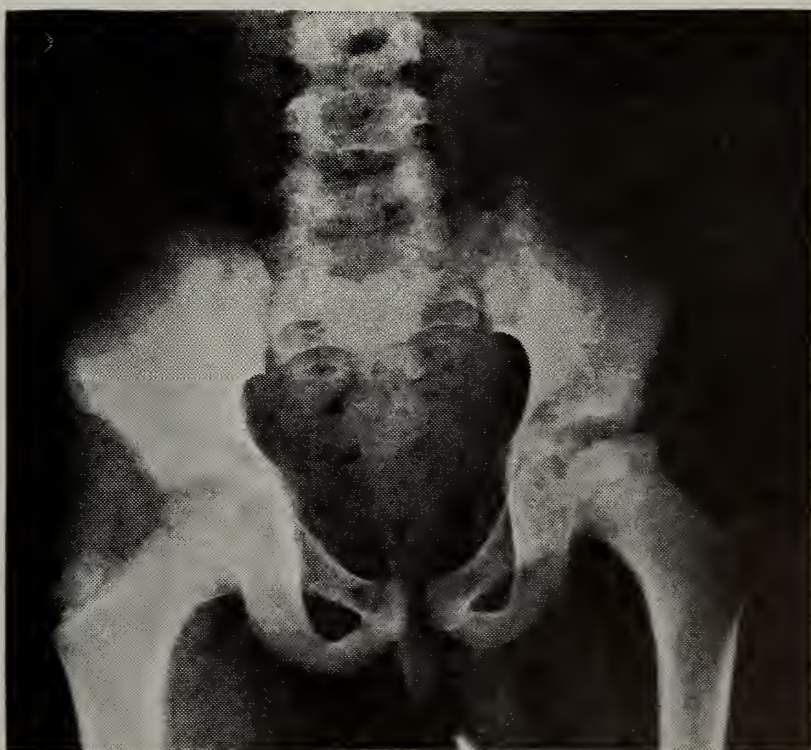
The presence of multiple joint involvement is also helpful in making the diagnosis of rheumatoid arthritis.

**Perthes' Disease.** — This is an avascular necrosis of the capital femoral epiphysis of unknown cause. Seventy-five to eighty-five per cent of the patients are boys and 20% have bilateral involvement. Patients generally range from 4 to 11 years in age. In general, the earlier the age of onset of the disease, the better the prognosis.

Perthes' disease is a self-limiting condition which runs its course and then heals. However, it may take 2 to 4 years for the involved hip to complete this cycle. During this period, the only effective treatment is to prevent deformity of the femoral head by weight-bearing.

The disease comes on insidiously. First the child limps, and then he reports pain. Often the child may complain of knee pain alone and have no hip symptoms. Early in the condition, there is synovitis with muscle spasm and limitation of motion, often confused with transient synovitis. There is nothing specific about the history or physical findings early in this condition, and a roentgenogram is required to make the diagnosis. It is essential to x-ray the hip in a child complaining of knee pain.

Since this is a vascular condition with interruption of the circulation to the femoral head, the characteristic roentgenographic changes are those of an early avascular necrosis (Fig. 3) with sclerosis and deformity of the epiphysis, subsequent fragmentation (Fig. 4), and dissolution of the epiphysis occurring later. Finally, healing



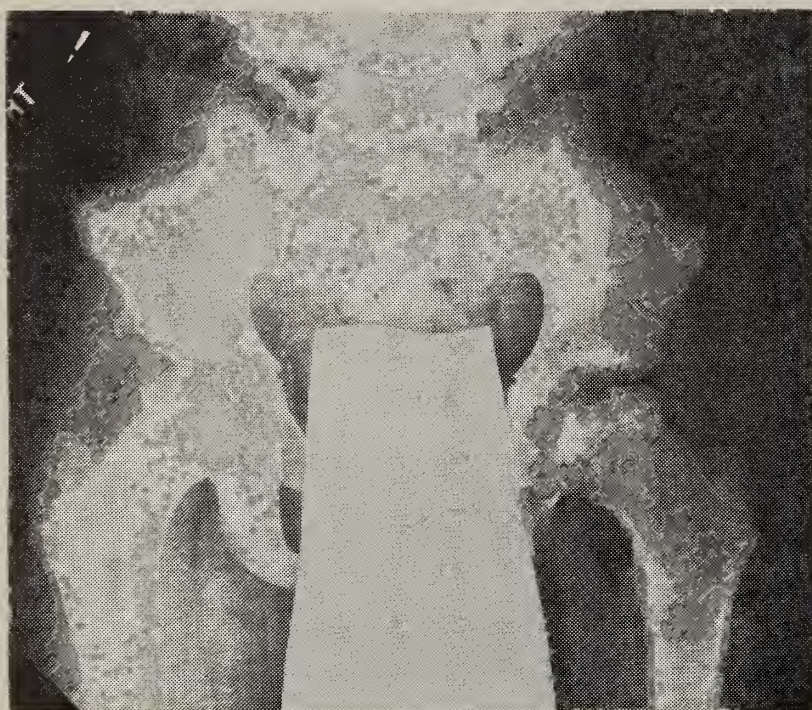
**Fig. 3.** Early Perthes' disease of left capital femoral epiphysis.



(Fig. 5) is evidenced by reossification of the epiphysis. Initially, the spasm and acute symptoms must be treated with bed rest and traction. With improvement, the child is then allowed to begin ambulation but with no weight-bearing on the affected extremity.



**Fig. 4.** Fragmentation stage of Perthes' disease in same case, 3 months later.



**Fig. 5.** Healing stage of Perthes' disease, 14 months later.

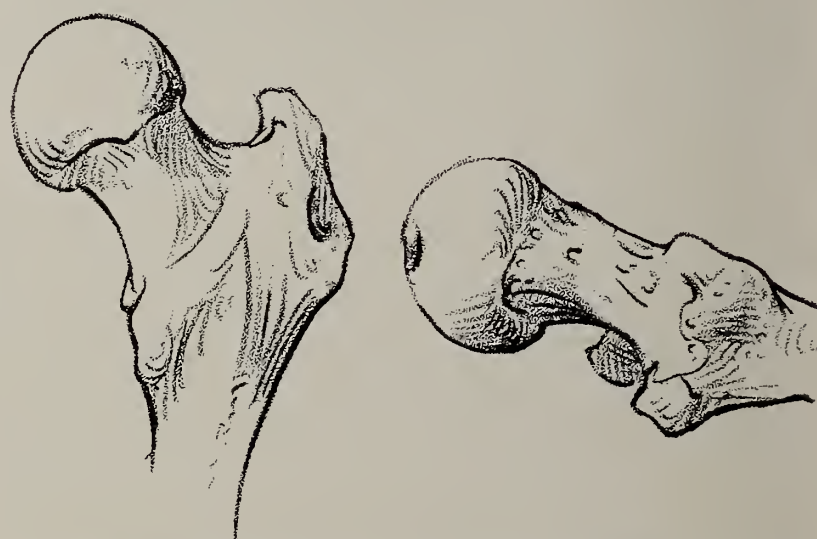
There are many ways to prevent weight-bearing. The most common are (1) Perthes' sling and crutches and (2) ischial weight-bearing caliper brace. Abduction casts and braces have also been devised. Some children must spend the entire course of the disease at bed rest because of bilateral involvement. The late consequence of this condition, if deformity of the femoral head occurs, is development of degenerative joint disease and a painful hip in adult life.

**Slipped Femoral Epiphysis.** — A frequent cause of hip disease in the adolescent is slipped capital femoral epiphysis. A gradual slipping of the capital femoral epiphysis on the femoral neck occurs primarily in adolescents (10 to 15 years old), and 20% of the patients have bilateral involvement.

For some unknown reason, the normal bond at the epiphyseal line becomes disrupted. The abnormal shearing forces on the epiphysis then cause it to slip from its normal position on the femoral neck. The condition may be due to some hormonal or metabolic imbalance because it occurs primarily in immature, short, fat boys of the Frohlich type or in tall, thin boys or girls.

Clinically, the initial finding is the gradual onset of a limp associated with mild pain in the groin. However, the child may have no pain at all. Limping and mild pain may go on for many months before acute pain and a severe limp occur. Often a fall causes acute symptoms and an acute slip, but careful questioning usually reveals this to be an acute episode superimposed on a gradual slipping which has been going on for many months.

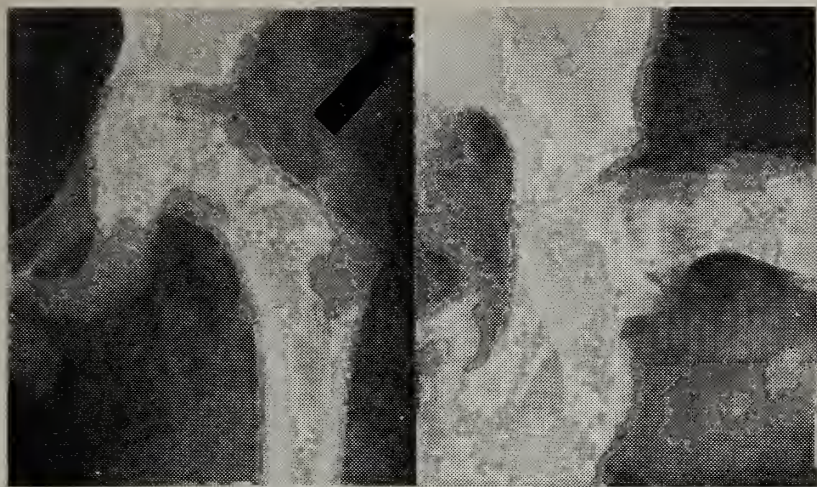
Diagnosis and treatment depend on the degree of slipping or displacement of the epiphysis. The vast majority are mild (Fig. 6). In mild slipping, the only finding may be mild limitation of internal rotation. With moderate slipping, more limitation of internal rotation occurs, the leg becomes shorter, and there is a loss of abduction at the hip.



**Fig. 6.** Mild slipping of left capital femoral epiphysis. (From Bianco, A. J.: Treatment of Mild Slipping of the Capital Femoral Epiphysis. *J Bone Joint Surg [Amer]* 47:387-396 [Mar.] 1965.)

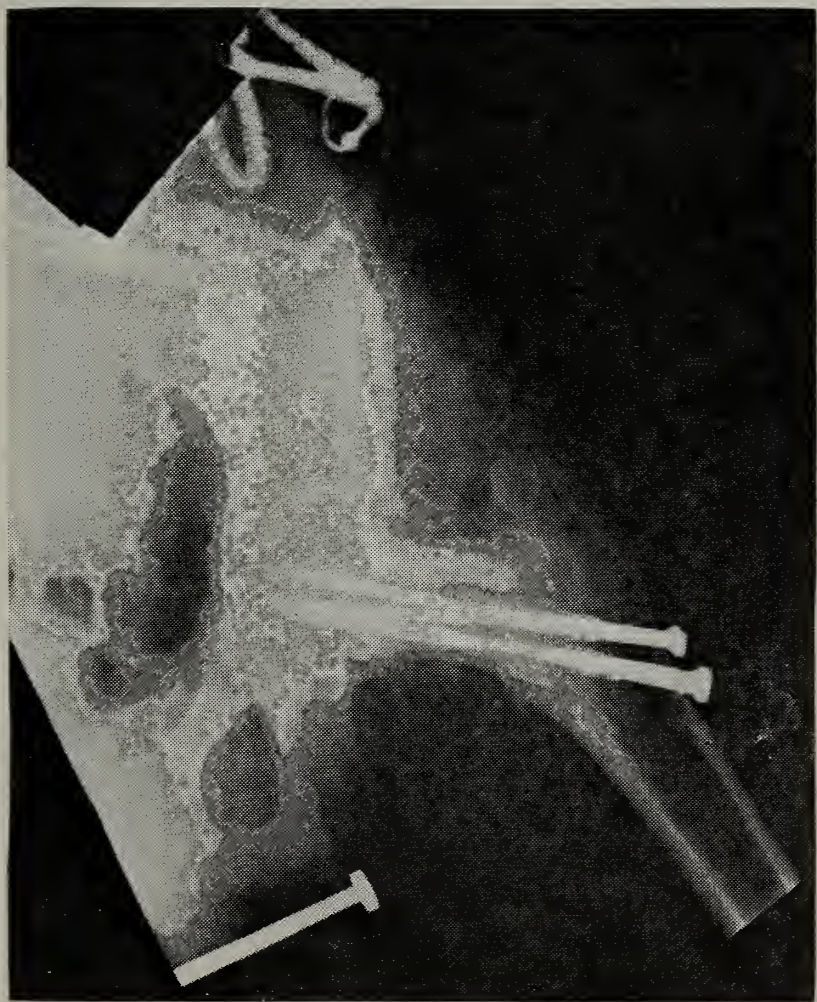
Diagnosis of a slipped capital femoral epiphysis often depends entirely on the roentgenogram, and even then it only may be apparent on the lateral view (Fig. 7). Also, one must always obtain a comparable view of the opposite hip to rule out bilateral involvement.



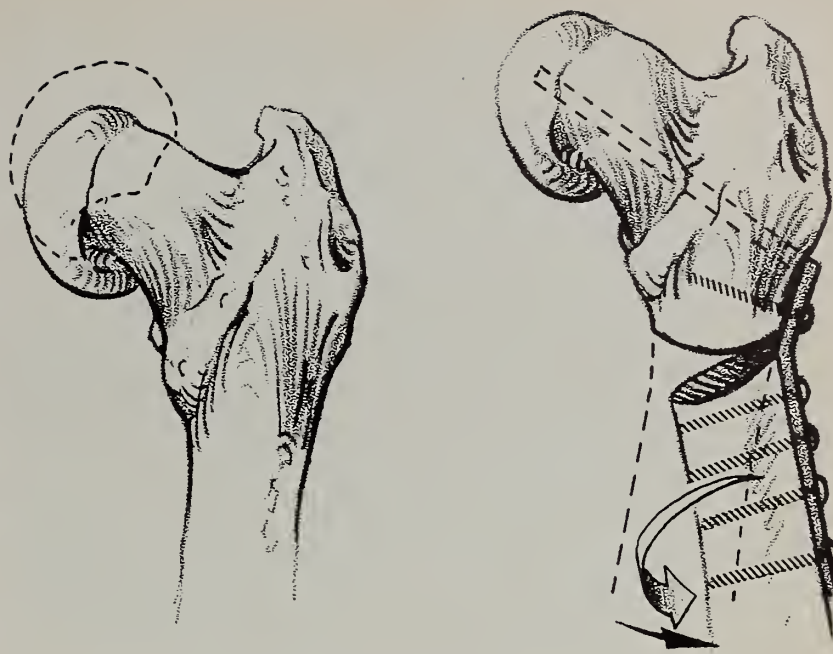


**Fig. 7.** Mild slipped capital femoral epiphysis, left hip. **Left,** Hip appears to be normal in anteroposterior view. **Right,** Lateral view shows mild posterior displacement.

Appropriate treatment in the vast majority of cases of mild slippage is to accept the deformity as it is and to prevent further slipping by internal fixation (Fig. 8). With moderate and severe slips, it is necessary to correct the deformity and then use some form of internal fixation to prevent further slipping (Fig. 9 and 10). The most serious complication following the treatment of slipped capital femoral epiphysis is avascular necrosis of the femoral head, usually resulting from overly vigorous attempts by the physician to reduce the deformity.



**Fig. 8.** In situ pinning of mild slip of left capital epiphysis, using three Knowles pins. (From Bianco, A. J.: Treatment of Mild Slipping of the Capital Femoral Epiphysis. *J Bone Joint Surg [Amer]* 47:387-396 [Mar.] 1965.)



**Fig. 9.** Late severe slip treated by subtrochanteric osteotomy.



**Fig. 10.** Severe slip treated by subtrochanteric osteotomy. Postoperative roentgenogram.

**Fractures.** — Fractures of the hip and femoral neck are much more serious in children than in adults for several reasons. The incidence of non-union of the fracture and avascular necrosis of the femoral head is significantly higher in the child because the capital femoral epiphysis acts as a barrier to the vascular supply to the femoral head (Fig. 11) and injury to the circulation is very likely with tearing of the joint capsule during injury.

In fractures of the femoral neck in children, open reduction and internal fixation is nearly always indicated except, of course, for an undisplaced fracture. Reduction is performed with general manipulation and then threaded pins are inserted for internal fixation (Fig. 12 and 13). The three-flanged Smith Peterson nail is much too bulky and difficult to drive across the





**Fig. 11.** Spalteholz preparation of femoral head and neck of 11-year-old child, showing epiphyseal barrier to vascular supply to epiphysis from metaphysis. (From Trueta, J.: *The Normal Vascular Anatomy of the Human Femoral Head During Growth*. *J Bone Joint Surg [Brit]* 39:358-394 [May] 1957.)



**Fig. 12.** Fracture of right femoral neck in child.

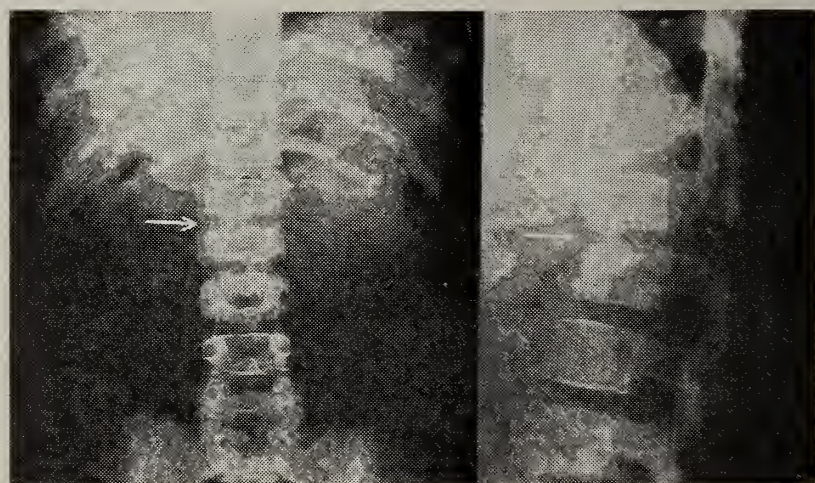


**Fig. 13.** Same fracture as in Figure 12, treated with threaded Knowles pins, 10 months later.

dense femoral neck and epiphysis and, therefore, increases the risk of avascular necrosis and injury to the epiphysis.

**Other Conditions.** — A perplexing situation is one in which a child presents with signs and symptoms of hip disease but no evidence of hip disease can be detected. Obviously, something else is causing hip pain.

A rare, but possible, cause of hip pain in a child is an intervertebral disk-space infection. This is usually a hematogenous infection secondary to bacteremia. There is often a history of a preceding upper respiratory tract infection or otitis. These children are in severe pain and are very irritable and have all the signs and symptoms of an infection. The hip pain and spasm suggest hip disease, and aspiration of the hip may be necessary to exclude septic arthritis. The limitation of hip motion and the pain are most likely due to psoas muscle irritation in the region of the involved lumbar intervertebral disk. Early diagnosis is often difficult because both hip and spinal roentgenograms are read as normal. Later, often by as much as 6 to 8 weeks, the roentgenogram of the lumbar part of the spinal column first begins to show the involvement of the intervertebral disk. This is first evidenced by hazy-appearing, irregular vertebral plates but no evidence of destruction of the vertebral body itself. Later roentgenograms reveal sclerosis of the vertebral plate (Fig. 14) and narrowing of the involved interspace. In spite of the misleading hip pain and limitation of motion, a careful examination will nearly always elicit some paravertebral muscle spasm and limitation of spinal motion.



**Fig. 14.** Intervertebral disk-space infection, antero-posterior (Left) and lateral (Right) views.

The most effective treatment for this condition is rest in bed, often with use of a lumbar cast or brace. The use of antibiotics does not seem to influence the eventual course of this condition which appears to be a self-limiting



disease with gradual improvement with time. Needle biopsy of several consecutive patients with intervertebral disk-space infection revealed the presence of *S. aureus* in the inter-vertebral disk. The disease may take several months to run its course with a gradual decrease in pain and spinal muscle spasm. During this period the sedimentation rate is the best laboratory guide to recovery because it gradually decreases toward normal limits with improvement.

Lèukemia often causes symptoms resembling an acute septic process involving a joint or adjacent metaphyseal bone, suggesting either septic arthritis or osteomyelitis.

Osteoid osteoma (Fig. 15) frequently causes severe night pain, spasm, and limitation of motion if bone near the joint is involved. Therefore, this lesion is often confused with joint disease. Significant features of osteoid osteoma are severe night pain and often a dramatic response to aspirin therapy.

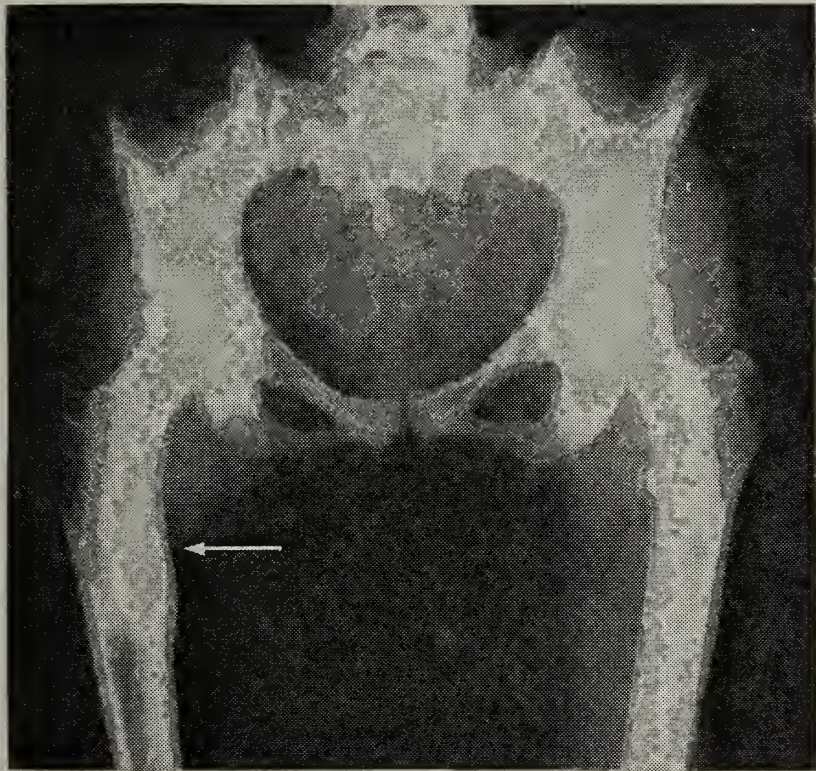


Fig. 15. Osteoid osteoma of right proximal femur.

Ewing's sarcoma (Fig. 16) and osteogenic sarcoma often involve bone at the metaphyseal end, and joint symptoms may be the only presenting complaints. For this reason, the entire shaft of the femur and the bones adjacent to the hip, as well as the joint itself, must be included in the roentgenographic evaluation.

### Summary

In infants and children the most acute and serious cause of hip pain and hip disease is acute



Fig. 16. Ewing's sarcoma of left proximal femur.

septic arthritis. This is an emergency; the diagnosis must be made early by aspiration of the joint, and antibiotic treatment must be started promptly.

The hip condition most often missed, because it is painless, is congenital dysplasia or dislocation of the hip. One must remember to check abduction of the hips in infants as part of a routine examination.

Perthes' disease is fairly common in children. It may be missed because knee pain is often the only presenting complaint. A roentgenogram of the hip is required for diagnosis.

Slipped capital femoral epiphysis may be missed because the early roentgenographic changes are subtle and are often seen only on the lateral view of the femoral head.

Tumors may be overlooked if night pain is ignored. The hip and knee and the entire femoral shaft must be examined by x-ray because tumors involving the femoral shaft may cause pain mistakenly localized at the hip.





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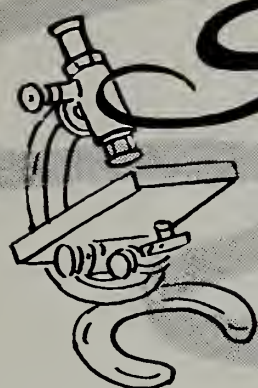
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# Scientific

# PAPER

## CARDIOVERSION

by  
Bernard Lown, M.D.\*

It is now six years since the introduction of cardioversion as a method for terminating arrhythmias. To date many thousands of patients have been successfully treated. This extensive experience provides an adequate basis for assessing the advantages and limitations of cardioversion. Ectopic tachycardias in the past have been controlled by means of drugs. The use of anti-arrhythmic agents, however, presents a number of limitations. To reach an effective dose requires a time consuming biologic titration involving frequent if not continuous monitoring of patients. However, whatever the precautions, serious side effects frequently occur. Furthermore, all anti-arrhythmic drugs when given rapidly or in large doses or when administered intravenously, depress myocardial contractility and reduce peripheral resistance. This may prove especially dangerous in the presence of an arrhythmia which already has compromised cardiac reserve.

### Method and Rationale

The majority of human tachyarrhythmias are self-sustaining by virtue of recirculation of an excitable stimulus over a fixed or variable pathway. When the pathway is blocked, the ectopic mechanism is extinguished and the sinus node resumes its usual role as dominant pacemaker.

Such block can be induced by an electrical pulse which depolarizes the entire heart and thereby abolishes momentarily all excitable activity. The hazard of electrical shock, namely, cardiac asystole and ventricular fibrillation, can be prevented by the use of brief direct current (DC) pulses and by discharging these pulses into a safe part of the cardiac cycle. The dangerous part of the cycle is the vulnerable period occurring at the time of inscription of the apex of the T wave. Electrical energy triggered into the heart during the vulnerable period results in ventricular fibrillation. Transthoracic DC shocks synchronized to discharge outside the T wave are both effective and safe for terminating a diversity of arrhythmias.

### The Technique of Cardioversion

Since the most common disorder treated with cardioversion is chronic atrial fibrillation, the steps to be described apply especially to this arrhythmia. However, the same procedure with but slight modification is applicable to other ectopic mechanisms. In the case of elective reversion, the patient is started one to two days before the procedure on maintenance quinidine therapy in a dose of 0.3 gm (5 gr.) 6 hourly. The objective of administering quinidine is four-fold: 1) to develop adequate serum and tissue levels in order to prevent prompt recurrence of the arrhythmia; 2) to determine whether quinidine is well tolerated; 3) to obtain a small dividend of reversions observed in about 10 percent of patients with chronic atrial fibrillation while on maintenance quinidine therapy; and 4)

\* Medical Clinics of the Peter Bent Brigham Hospital, Cardiovascular Laboratories of the Department of Nutrition, Harvard School of Public Health

South Dakota Heart Association, prepared by the American Heart Association for this Journal.



to diminish the incidence of ectopic mechanisms immediately following cardioversion. One hour before the procedure 0.1 gm pentobarbital sodium (Nembutal<sup>R</sup>) is given orally. Transient amnesia is achieved by use of diazepam (Valium<sup>R</sup>) given in a dose of 2.5 mg intravenously and repeated at two minute intervals until mild anesthesia. This drug is well tolerated and generally about 10 to 15 mg suffices for the desired effect. The two electrode paddles are coated with liberal layers of conductive paste and applied in a front-back orientation. The anterior paddle is held with pressure on the mid sternum while the patient lies on the posterior paddle which is located in the left infrascapular region.

Perhaps the most important aspect of the procedure is to begin with low energy settings of 1 to 5 watt seconds (WS) and then proceed with higher energies such as 25, 50, 100, 200, 300, up to 400 WS. The practice of energy titration protects against serious complicating arrhythmias. For example, if electric shock provokes ectopic beats at low energies before reversion is achieved, one has the option of postponing the procedure or else administering lidocaine in a bolus of 50 mg intravenously. If such titration is carried out, it is not necessary to discontinue digitalis drugs prior to cardioversion. The reversion itself takes but a fraction of a second and the patient is usually awake within a few minutes. When a normal mechanism is restored blood pressure generally rises. There is no need to monitor the patient for a period longer than one hour if the procedure is uncomplicated.

#### **Selection of Patients**

How are patients to be selected for cardioversion? Two questions need to be answered: 1) is the arrhythmia susceptible to electrical reversion? and 2) will a normal mechanism be maintained for a sufficiently long time? Cardioversion has no place in the treatment of brief paroxysmal arrhythmias, recurring ectopic beats or deranged atrioventricular or intraventricular conduction. It is without effect when the mechanism is sinus tachycardia, a reflex physiological acceleration of the normal pacemaker which does not yield to antiarrhythmic measures. Digitalis induced rhythm disorders similarly are impervious to cardioversion. Furthermore, in the presence of digitalis toxic arrhythmias, more serious and even fatal disorders of the heart beat may result.

A number of patients are poor candidates for cardioversion because though sinus rhythm can be established it cannot be maintained. When quinidine is not tolerated and adverse reactions

follow procaine amide, a normal rhythm will not persist. Patients with rheumatic heart disease who have been in continuous atrial fibrillation for more than two years or those with advanced degrees of mitral regurgitation who display a giant left atrium are unlikely to remain in sinus rhythm long enough to justify cardioversion. The elderly asymptomatic patient with coronary artery disease and atrial fibrillation who exhibits a slow ventricular rate prior to digitalization is an unsuitable subject. Patients who have recurrent paroxysm of diverse atrial arrhythmias should not be reverted once they develop atrial fibrillation. They are less symptomatic with atrial fibrillation than when in sinus rhythm punctuated by frequent paroxysms of tachycardia. Patients should not be reverted before, during, or immediately after valvular operations. It is preferable to wait for ten or more days after surgery since sinus rhythm is then more likely to be long lasting.

#### **Overall Results**

To date at the Peter Bent Brigham Hospital 900 patients have been reverted by means of cardioversion. Chronic atrial fibrillation accounted for 650 of these episodes; 150 had atrial flutter and the remaining 100 had either ventricular tachycardia or varying supraventricular mechanisms. The overall success rate was 95 per cent. These results are the more impressive, since the arrhythmia in many of these patients had proved refractory to large doses of antiarrhythmic drugs. More than 2,000 electrical shocks were employed; yet, there was not a single episode of prolonged cardiac asystole and but one episode of ventricular fibrillation due to a failure to synchronize the shock. Although many of the patients were in critical condition and a number had sustained acute myocardial infarction and were in far advanced stages of congestive heart failure, none died as a result of cardioversion. Serious immediate complications were limited to 10 episodes of ventricular tachycardia. These were of brief duration and readily controlled. Eight of the patients suffered systemic thromboembolic complications within 1 to 8 days following cardioversion.

#### **Specific Rhythm Disorders**

Atrial fibrillation is the most common chronic disorder of the heart beat. One is no longer justified in using quinidine for reversion of this disorder. With quinidine, even when given in large doses, only 50 per cent of patients are restored to sinus rhythm; however, 30 per cent experience significant toxic reactions and 1 to 2



per cent may die from the drug. With cardioversion, atrial fibrillation can be terminated in more than 90 per cent with an incidence of complications not exceeding one per cent.

Immediately after the cardioversion discharge, there may be transitional mechanisms consisting of nodal rhythm, a shifting pacemaker, and ectopic atrial beats. These are observed in about 50 per cent of patients and continue for 30 to 60 seconds until the sinus node "warms up." With restoration of sinus rhythm, the ventricular rate is slowed. The PR interval is generally full and not infrequently first degree heart block is present. The overall hemodynamic state is improved with a rise in cardiac output by about 30 per cent. The most salutary effects are observed in patients who are afflicted with mitral and aortic valvular insufficiency. Maintenance quinidine therapy has to be continued in an adequate dose of at least 1.2 gm daily which results in blood level of about 3 mg per litre. Even with this dose of quinidine, atrial fibrillation will recur within 6 months in 50 per cent of patients.

Atrial flutter is best treated with cardioversion. It is the easiest disorder to terminate electrically. The arrhythmia generally responds to a single low energy shock of as little as 1 to 5 WS. No serious complications have been encountered.

Supraventricular tachycardias often present complex diagnostic and therapeutic problems. Frequently, it is difficult to define the mechanism precisely whether it is of atrial or nodal origin. More important is to determine whether digitalis glycosides are responsible for the disordered rhythm. If the arrhythmia is due to digitalis intoxication, electrical shock may provoke lethal disorders of the heart beat. When, however, small energies are employed and lidocaine is used to abolish ventricular ectopic beats, the supraventricular arrhythmias can be safely treated with cardioversion. The success rate, however, is only 70 per cent.

Ventricular tachycardia responds well to antiarrhythmic drugs such as procaine amide and lidocaine and these constitute the preferred therapy. When the arrhythmia, however, is accompanied by significant hypotension, or the patient is in pulmonary edema, or the tachycardia has developed in the wake of acute myocardial infarction and does not yield immediately to a bolus injection of lidocaine, cardioversion should be employed promptly.

## Complications

The major complication following cardioversion of chronic atrial fibrillation is systemic or pulmonary embolism. This occurs in 1 per cent of patients who have not received anticoagulant drugs. If the reversion is elective and the underlying disease is rheumatic valvular, pretreatment with anticoagulants for two to three weeks is indicated. Aside from thromboembolism, atrial and ventricular arrhythmias may complicate the cardioversion procedure. The atrial mechanisms generally are of three types: 1) delayed warm up of the sinus node manifested by sinus bradycardia, nodal rhythm or escape beats — the so-called "somnolent sinus node syndrome," 2) increased atrial automaticity demonstrated by single or multiple atrial premature beats at times associated with brief salvos of tachycardia and 3) "sick sinus node syndrome," a defect in the elaboration or conduction of the sinus impulse characterized by chaotic atrial activity and usually followed by prompt reestablishment of atrial fibrillation.

The ventricular arrhythmias complicating cardioversion are less common but more threatening than the atrial disorders. These are of two types: ventricular fibrillation, which occurs immediately after delivery of the shock and usually is the result of improper synchronization; the second type develops after several beats or within a few minutes and consists of bigeminy or multifocal ventricular ectopic beats which may result in ventricular tachycardia or rarely in ventricular fibrillation. These later arrhythmias are generally associated with excessive digitalis. Lidocaine, in one or more injections of 50 mg intravenously, is promptly effective.

## Conclusion

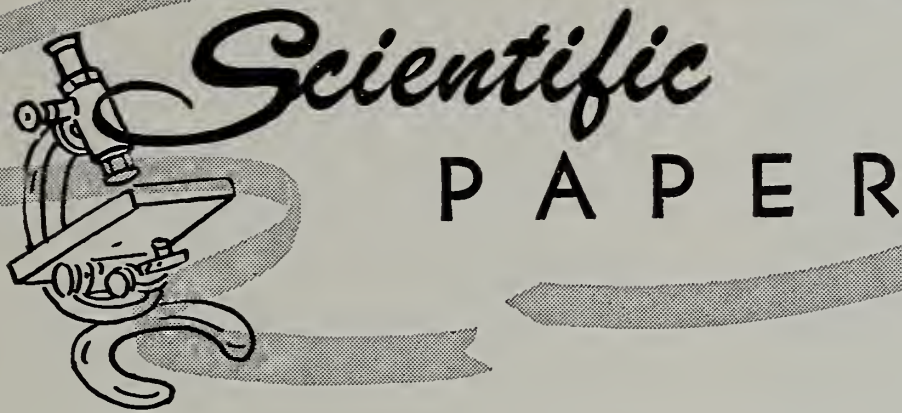
The method of cardioversion is simple and direct. The physician can observe the entire process of reversion. It does not require a great investment of physician or patient time and is applicable to diverse arrhythmias. Differentiation between ectopic disorders, essential in the use of drugs, ceases to be a critical requisite for effective therapy.

Cardioversion is not accompanied by significant occurrence of serious complications. There is no depression of contractility, conductivity or excitability of the heart — a common sequel after large doses of antiarrhythmic drugs. The method of cardioversion can be readily mastered by the general physician.



WHAT'S  
SO WEAK  
ABOUT  
THE WEAKER  
SEX?





## POISONING DUE TO ORINASE (TALBUTAMIDE INTOXICATION)

Roscoe E. Dean, M.D.

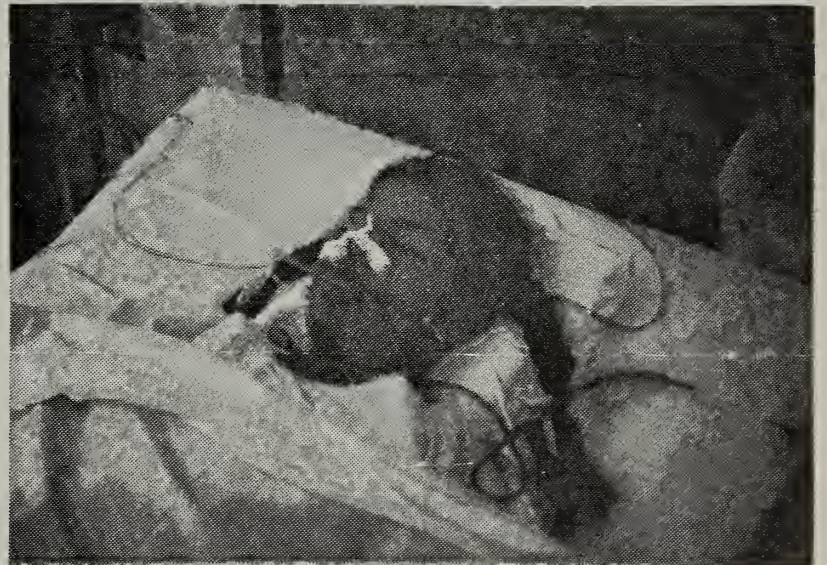
At 8:30 p.m. September 28, 1968 a fifteen year old Indian girl was brought to the hospital in Wessington Springs near death. Her father (who is a diabetic) stated she had taken over two bottles of Orinase plus about 25 aspirins and some vitamins. The Orinase bottles contained 50 tablets each. Both parents, who are good and sober people, and the patient (after she regained consciousness) swear that the above mentioned amounts are correct.

The girl was completely flaccid, not breathing. She had a faint pulse. The pupils were dilated and fixed. Apparently she had recently vomited and aspirated stomach contents. The throat was cleaned, oxygen was started, the chest was pumped and she started breathing. Blood pressure returned and by the time she was placed in bed the blood pressure was 200/100.

History revealed that the girl is a vigorously healthy high school Junior who occasionally sings with a small dance band. The girl took the pills in a fit of anger because her parents would not let her attend a dance.

The patient apparently slept normally the night after taking the pills but was drowsy in the morning — later in the day the girl became ill with nausea, vomiting and became unconscious. The father was away at work with the family car, there was no telephone and no close neighbors. When he returned from work the parents loaded the girl into the car and drove approximately 45 miles for medical attention.

Immediate treatment after resuscitation was aspiration of the stomach, nasal oxygen and IV drip of 10% glucose in water.



At 9:30 p.m., approximately twenty-four hours after taking the pills, the patient had her first convulsion. Her blood pressure at that time was 110/90, she was absolutely rigid with an arched back. The pupils reacted at that time. From then on the girl had a convulsion every few minutes. Ten percent glucose was given as fast as it would drip, the patient was given one-half grain codeine for the rigidity.

Approximately twelve hours after admission the blood pressure was 80/0, the pupils were now constricted and fixed. The arms and legs became rigid every few minutes.





The morning following admission the blood sugar was recorded as 97 (10% glucose was running at the time), BUN 14.2, sodium 132, urine contained 8.9 rbc per HPF, no albumin. Blood sugar continued to run 75 to 80 at the same time 10% glucose was being given I. V. The convulsions became gradually less severe.

On October 1 the girl was still unconscious but blood pressure was 106/80 and eyes would try to focus. On the morning of the 1st the girl swallowed about  $\frac{1}{4}$  glass of orange juice.

Intake and output were about 2500 in and 3500 out. A catheter was in place.

On October 2, the girl was able to sit on the edge of the bed, but she had a completely blank expression and apparently did not comprehend. The catheter was removed but it had to be replaced because she was incontinent. She would smile when questioned. On the morning of the 4th it is recorded that she was semi-hysterical. She would laugh and giggle for no reason at all. She had to be restrained because she was completely unmanageable. On the 5th she ate a full diet with help. There were no longer any seizures but she still had to be restrained because she was irrational. On the 7th she was

given Seconal and gradually gained strength, became completely rational and was dismissed on October 16th, eighteen days after admission. As far as can be determined there are no sequelae.

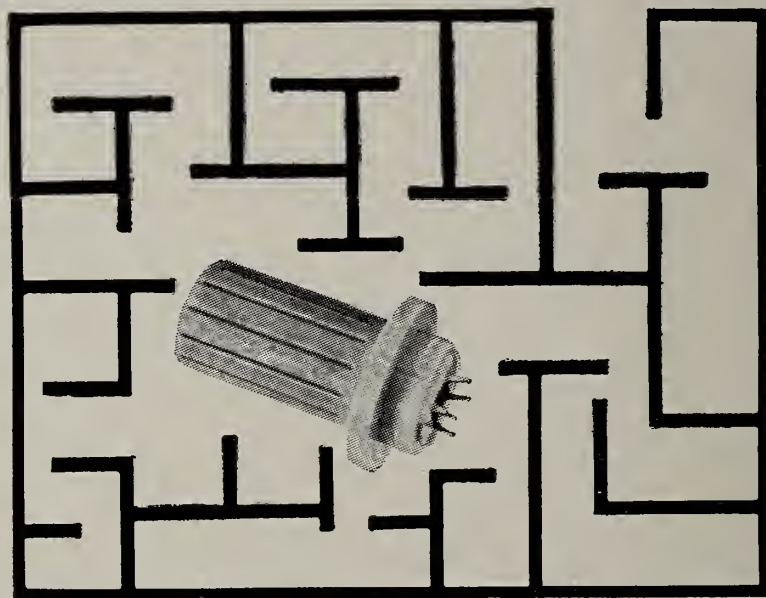
A talbutamide level run by the Upjohn Lab on blood drawn fifteen days after admission showed no evidence of talbutamide in the blood.

#### **In Conclusion:**

This is the case report of a 15 year old Indian girl who took 100 Orinase tablets and recovered.

A review of the literature plus telephone consultations gave me little help in treating the girl. She did receive antibiotics but I used very little sedative. None of the rather extensive blood tests revealed evidence of liver or kidney damage.

Dr. J. N. Spencer of the South Dakota Poison Information Center wrote the following in a letter to me December 9, 1968. "I have made a superficial check on reported cases of talbutamide intoxication. I could find no record of any one having taken an amount comparable to that taken by your patient. This would make an interesting report for the South Dakota Journal of Medicine."



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## Path CAPsule

Submitted by the College of American Pathology in connection with the South Dakota Society of Pathologists.

### ISOENZYMES OF LDH

Although in a number of disease conditions an elevation of serum enzyme activity is of diagnostic significance, the interpretation of an elevated lactic acid dehydrogenase (LDH) *per se* is impossible. This enzyme is widely distributed throughout many body tissues and consequently total activity measurements are relatively non-specific for any organ. Like many other enzymes, LDH is not a single enzyme but consists of a number of heterogenous isoenzymes. At least five isoenzymes of LDH are readily detected in human serum.

These isoenzymes, although possessing the same action and substrate specificity, differ in chemical and physical characteristics, e.g., amino acid structure, electrophoretic mobility and heat stability. The electrophoretic fractionation of LDH into its five isoenzymes has proved valuable in localizing specific organ damage and improving the diagnostic value of enzymatic analysis. Even though the LDH isozymogram provides no insight into the etiology of the organ damage, when interpreted in a clinical context it does reduce considerably the number of diagnostic possibilities attributable to an elevated serum LDH. It is to be emphasized that the LDH isozymogram is a confirmatory test and in no instance is to be used as the sole diagnostic criterion for any disease.

The five electrophoretic isoenzymes of LDH are usually referred to as LDH<sub>1</sub>, LDH<sub>2</sub>, LDH<sub>3</sub>, LDH<sub>4</sub>, and LDH<sub>5</sub>. The subscripts refer to the electrophoretic mobilities with the fast moving component (the isoenzyme with the greatest mobility to the anode) being LDH<sub>1</sub>. The remaining fractions are consecutively numbered with LDH<sub>5</sub> representing the slowest moving isoenzyme.

The concentrations of the different isoenzyme fractions vary from tissue to tissue; however, sera from normal, healthy individuals produce a characteristic isozymogram pattern. Al-

terations of the normal isozymogram profile thus renders this procedure a valuable test in the differential diagnosis of disease.

Typically, sera from patients with myocardial infarction exhibit a marked increase in LDH<sub>1</sub>, and LDH<sub>2</sub>, the fast moving components. In contrast LDH<sub>5</sub> is elevated in liver disease. In this regard, it should be remembered that cardiac muscle has a higher content of LDH<sub>1</sub> than any other tissue.

There are rare instances in which elevated serum LDH levels have been associated with a normal LDH isozymogram profile. Occurrences have been reported in polycythemia vera and disseminated neoplasia. Conversely, altered or abnormal isozymogram patterns do occur, and indicate disease conditions, without a concomitant increase in total LDH concentration.

Alterations in the normal isozymogram profile has been reported in various disease states and some conditions in which significant changes occur are listed below:

	LDH <sub>1</sub>	LDH <sub>2</sub>	LDH <sub>3</sub>	LDH <sub>4</sub>	LDH <sub>5</sub>
Myocardial infarction	+	+			
Myocarditis	+	+			
Active rheumatic heart disease	+	+			
Pernicious anemia	+	+			
Hemolytic anemia	+	+			
Adenocarcinoma of colon	+	+	+	+	+
Renal tubular and cortical necrosis	+	+	+	+	+
Pulmonary infarction	±	±			
Infectious mononucleosis			+	+	+
Hepatitis					+
Hepatic congestion					+
Skeletal muscle necrosis					+
Dermatomyositis					+
Various malignant neoplasms	+	+	+	+	+

The percentage distribution of LDH isoenzymes in normal sera is given below:

	% total activity
LDH <sub>1</sub>	20-30%
LDH <sub>2</sub>	22-45%
LDH <sub>3</sub>	15-30%
LDH <sub>4</sub>	5-15%
LDH <sub>5</sub>	0-15%

Specimen needed for test: 3 ml. serum

Because LDH is present in red blood cells, hemolyzed serum will invalidate results. Levels in the serum are not affected by meals and the enzyme is sufficiently stable at room temperature to permit mailing of samples.

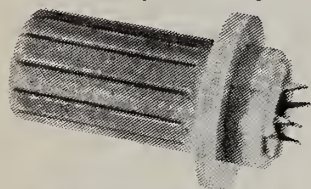
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# CLINICOPATHOLOGICAL CONFERENCE

*From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by  
the Departments of Pathology of the Hospital and of the School of Medicine  
of the University of South Dakota*



**RICHARD D. SCHULTZ, M.D.\***  
*Pathologist-Editor*

**EBERHARD H. HEINRICHS, M.D.\*\***  
*Pediatrician-Discusser*

## NINE MONTH OLD INFANT WITH FEVER, RASH, AND PNEUMONITIS

### Case No. A-66-79

This 9-month old Caucasian male was seen in the emergency room at Sioux Valley Hospital because of fever and loose stools. Three days prior to being seen, he developed a temperature of 103°F. He also began to have loose greenish-colored stools, but no overt diarrhea. Two days before being seen in the emergency room he broke out with a maculo-papular eruption over the arms, legs and trunk which spontaneously disappeared in one day. Physical examination in the emergency room revealed a temperature of 103°F. The throat was red with exudate on the tonsils and posterior pharynx. There was mild dehydration. The remainder of the examination was normal. The patient was admitted to the hospital and started on aspirin, oral fluid, oral erythromycin in suspension and parenteral Bicillin and procaine penicillin.

Admission laboratory tests revealed a normal urinalysis, 10.0 gm% hemoglobin, 33% hematocrit, 3.94 million/mm<sup>3</sup> erythrocyte count, 25 micromicrograms MCH, 84 cubic micron MCV, 30% MCHC, and 37mm/hr sedimentation rate. The leukocyte count was 11,800 with 27% segmented neutrophils, 8% band neutrophils, 5% eosinophils, 58% lymphocytes and 2% monocytes. The platelets appeared normal and the erythrocytes were normochromic and normocytic. Throat culture was reported as normal flora. On the second hospital day it was noted that the patient had developed nuchal rigidity and re-

sistance to straight leg raising. The tip of the spleen was just palpable. The infant was still alert and in no distress. A chest x-ray revealed minimal density in the right basal region consistent with localized pneumonitis. A spinal tap was done (pressure not recorded). The fluid removed contained 10 RBC and 14 WBC/mm<sup>3</sup>. The WBC were 70% neutrophils and 30% mononuclears. Spinal fluid protein was 35 mgs.%, sugar 65 mgs.%, and LDH 46 units. Culture produced no growth (TBC and viruses not checked for).

Four days after admission the patient still had a temperature spiking between 100 and 103°F. and a pulse rate varying from 100 to 150. Respiratory rate varied between 30 and 50. The nuchal rigidity was noted to be present sometimes and apparently absent at other times. The leukocyte count was 12,300 with 43% segs, 9% bands, 3% eosinophils, 35% lymphocytes and 10% monocytes. The blood smear showed a few atypical lymphocytes and the erythrocytes were slightly hypochromic and microcytic. Weil Felix agglutination tests showed no titers for OX19 and OX2, but a 1:80 titer for OXK. Leptospira, Brucella and heterophile antibody tests showed no titers. The Sabin dye test for toxoplasmosis was negative. Stomach aspiration with smear and culture and urine smear and culture showed no evidence of acid fast bacteria and no growth of acid fast organisms.

On the sixth hospital day the parenteral penicillin was discontinued and oral Polycillin was begun. Stool culture showed no enteric pathogens and blood culture showed no growth. On the seventh day another spinal tap was performed. There were 3 RBC and 7 WBC (60%

\*Pathologist, Sioux Valley Hospital and Clinical Associate Professor of Pathology, School of Medicine, University of South Dakota.

\*\*Pediatrician, Memorial Hospital and St. Ann Hospital, Watertown, South Dakota.



neutrophils and 40% mononuclears). Spinal fluid protein was 33 mgs.%, sugar 86 mgs.%, and LDH 37 units. Culture showed no growth. The leukocyte count was 18,800 with 57% segs, 10% bands, 5% eosinophils, 17% lymphocytes, and 11% monocytes. Hemoglobin was 9.1 gms%. On the eighth day the infant was still febrile, had definite diarrhea, and was irritable. Another physical examination was normal except for moderate nuchal rigidity, palpable tip of the spleen, hyperactive deep tendon reflexes, bilateral sustained ankle clonus (slightly greater on the left), and positive Kernig sign. VDRL was non-reactive, Weil Felix agglutination was unchanged from previous testing. Salmonella ABCDE titers were negative, and the heterophile antibody was still negative.

On the tenth hospital day Polycillin was stopped and Declomycin was started. The tuberculin skin test (tine test) was negative and urinalysis was still normal. Urine culture grew 10,000 colonies of *E. coli* per ml. Repeat chest x-ray showed bilateral hilar congestion and a persistent right lower lobe density. Skull x-rays were normal. On the twelfth day the infant was started on INH, PAS, and streptomycin. While being prepared for a bone marrow examination, the child convulsed and pulse and respirations ceased. Resuscitative efforts failed.

**Dr. Eberhard H. Heinrichs:** Thank you very much for giving me, an "outsider," the opportunity to discuss this most interesting patient. After having read the protocol, I will attempt to retrace what happened to this patient. We have a nine-month old child with:

- A. A history of having had a temperature (103°F.) three days prior to admission; a maculopapular eruption for one day, two days prior to admission; loose but not diarrheal stools were noted.
- B. A temperature of 103°F was found upon admission but the physical examination yielded only a pharyngitis and mild dehydration.
- C. Laboratory findings do not appear typical for anything. A borderline anemia, which probably would be worse after hydration; an elevated sedimentation rate; a moderately elevated white blood count and a "shift to the right" (lymphocytosis) but with 8% stab-forms; and a chest roentgenogram showing pneumonic infiltrations were recorded.

The admitting physician probably thought he was dealing with a typical viral respiratory infection, causing a rash, pharyngitis, gastroenter-

itis and bronchopneumonia. We see them, not infrequently, especially in connection with ECHO — virus infections. Those rashes are rubelliform, have discrete pink to red macules, and last usually for 4-5 days, but can stay as long as 9 days. The central nervous system complications are more of an aseptic meningitis type with mononuclear cells. In the beginning the spinal fluid most likely shows granulocytes. Elevated protein, normal glucose and increased spinal fluid pressure<sup>1</sup> are also present.

The course during the hospitalization was rather stormy and confusing, but it might be worthwhile to summarize it. On the second day of hospitalization CNS symptoms were evident, namely nuchal rigidity and a positive Kernig reflex. A lumbar puncture did not yield much information. There was a slightly elevated cell count (mainly granulocytes), some red cells (possibly due to a traumatic tap), normal protein, glucose, and LDH values and later a negative culture. This is non-diagnostic at this time.

The child continued to spike a temperature. Neurological signs were present or absent at different times, reported apparently by different observers. At this point it is obvious that the child has a CNS complication and the spinal fluid pressure measurements might have been helpful.

On the fourth day of hospitalization the peripheral leukocytosis became pronounced and a "shift to the left" set in. Also the monocytes became increased and eosinophils remained present (5%) as they do frequently in viral infections. Now a wealth of diagnostic results flowed in. A diagnosis of "Fever of Unknown Origin" was entertained. Agglutination titers, toxoplasmosis, mononucleosis, gastric washings for acid fast bacilli, stool and urine cultures, leptospirosis, and brucellosis tests were all negative. The OXK-titer was positive as it is in 50% of all patients anyway. Since this is a test for Tsutsugamushi fever, it appears highly unlikely that a nine-month old infant in our area had contracted this disease.

On the seventh day of hospitalization the peripheral white count increased further. The "shift to the left" became more pronounced (10% stab-forms), but also 11% monocytes and 5% eosinophils were present. The hemoglobin dropped to 9.1 gms% perhaps due to better hydration. A lumbar puncture did not yield new information, but the neurological symptoms were more definite.



On the tenth day of hospitalization a repeat chest roentgenogram still showed infiltrations. The screening for obscure infections was repeated, but no new information was obtained. On the twelfth day of hospitalization conclusions from the therapeutic regimen indicated that in the absence of other diagnoses the possibility of a tuberculous meningitis or cerebral tuberculoma was entertained, but no positive evidence to substantiate this diagnosis was available. While attempting to obtain a bone marrow, the child convulsed and expired.

In short, the child had a febrile illness with an exanthema of short duration and a central nervous system disease of non-bacterial nature. Let us start our analysis from here. The child had no reported prodromals, that is no cough, coryza or conjunctivitis. But he did have an elevated temperature on the day before the rash was noted on the legs, trunk and arms. The rash disappeared in one day and two days later, upon admission, there was no trace of it detectable. Roseola can be excluded because it appears after the child's fever has gone for 24 hours. Scarlet fever appears unlikely because the children are usually sicker, the rash stays longer, is not maculopapular in appearance, and is extremely uncommon in this age group. Rubeola (red or hard measles) has typical prodromal symptoms and usually higher temperatures. The rash lasts longer than 24 hours, so that some of it should have been evident upon admission three days later. Even when it has disappeared, skin pigmentations may remain for several days. The ECHO virus exanthemas have a discrete maculopapular rash, which is rarely confluent. The rash starts at the beginning of the temperature rise and lasts usually 4-5 days<sup>2</sup> (with a range of 1-9 days).<sup>1</sup> On the information available about the rash and fever alone, I could not decide if this was such a viral exanthem. Other evidence, especially the peripheral blood counts, led me to believe that this was not an ECHO-virus infection.

This leaves us with rubella (German measles) where the eruption as a rule lasts for 2-3 days with moderate temperatures and no other general symptoms. This is not necessarily in contradiction to the protocol, which mentions the rash over the trunk, arms and legs. On the preceding day the rash could have involved the areas behind the ears and scalp where it easily escapes detection,<sup>3</sup> because when it appears on the rest of the body it has frequently faded on the face and head. The rash appears usually in association with a temperature, which was the

day before the rash appeared on the trunk. I assume, therefore, that while the rash was noted only for one day, it could have lasted for two days. Supportive for the assumption that we are dealing with rubella are the typical changes in the peripheral blood. Rubeola has a specifically low leukocyte count on the second and third day of the exanthem<sup>3</sup> at which time the depression is not as pronounced in rubella. As a matter of fact it might even be slightly elevated. Typical for rubeola is an absence (below 2%) of eosinophils while in rubella eosinophilia from 2-10% between the third and the tenth day of the illness is seen. This is the only infectious disease, by the way, to show such elevation.<sup>4</sup> Other typical morphological features of the blood in rubella<sup>4</sup> are the marked rise in stab-forms, a relatively high percentage of lymphocytes and monocytes, a continuous increase in leukocytes (maximum on the seventh to the eighth day) and the increase of monocytes (usually 8-12%), all mentioned in the protocol. The fact that no lymph node enlargement is reported is not particularly disturbing, since at the time of the rash less than 30% of the children exhibit such symptoms.<sup>2</sup> Since there was no specific search for them, they might have escaped attention. The palpation of the splenic tip was mentioned several times. This is another pathognomonic sign that we are dealing with rubella, since this is unusual in other exanthematous infectious diseases.<sup>5</sup> The ECHO-virus infections (mainly Type 9, but also 1, 2, 4, 6, 14, and 16) have either normal peripheral white cell counts or elevated ones up to 19,000 per cubic millimeter with granulocytosis.<sup>1</sup>

Let us now analyze the neurological symptomatology. There were nuchal rigidity, Kernig reflex (first inconsistently, later constantly present), bilaterally sustained ankle clonus (slightly greater on the left), and, shortly before death, convulsions. The lumbar punctures, done twice without pressure recordings, were non-diagnostic except that each time there were more than 50% neutrophils. I tend to discount the erythrocytes in the amounts recorded, since I believe they were traumatic in origin. At least there was no notation to the effect that they were crenated. Glucose, protein, and LDH levels were normal and cultures negative. I am not at all disturbed by the absence of spinal fluid findings, since "the spinal fluid is normal in almost half of the patients with encephalitis. This diagnosis is made primarily on clinical grounds (lethargy, convulsions and so forth)."<sup>6</sup> About post-infectious rubeola encephalitis it has been



said, "As a whole, the spinal fluid signs are too variable to be depended upon as a diagnostic aid."<sup>5</sup>

The slow onset of the neurological symptoms and the original bland course of the disease speaks more for rubella etiology. With rubeola we are used to seeing the more fulminant picture even though it can appear also with rubella. The aseptic meningitis syndrome of ECHO viral infections has usually a benign prognosis, a shorter duration than described in this patient, and the ankle clonus is usually absent.<sup>1</sup> About rubella encephalitis I may quote: "In recent years post-infectious encephalitis has been observed as a complication. A few severe, some fatal cases occurred in the United States Army during World War II. In these cases the pathologic findings were not unlike those that characterize the encephalitis which follows other infectious diseases, such as measles and chickenpox in which demyelination is an important lesion."<sup>5</sup> The encephalitis can occur at any time in relation to the appearance of the rash. From measles we know it can appear during the prodromal period up to the seventh day after the rash.

What are the complications of rubella which we tend to think of as a harmless disease except for the unborn child? These can be pharyngitis, otitis media, croup, bronchitis, bronchopneumonia, glomerulonephritis, endocarditis, purpura and rarely encephalitis or meningo-encephalitis. In addition, the patient had as previously mentioned, a hypochromic microcytic anemia, probably due to nutritional deficiency. He was dehydrated and had a mild gastroenteritis which was exacerbated during the hospitalization, probably due to the oral administration of antibiotics.

My clinical diagnosis is:

1. Rubella (the possibility of an ECHO virus infection is less likely).
2. Secondary to rubella was:
  - a. Pharyngitis
  - b. Viral bronchopneumonia, possibly with bacterial superinfection
  - c. Post-infectious encephalitis
3. Anemia, due to nutritional deficiency
4. Gastroenteritis, non-specific, aggravated by antibiotics
5. Mild dehydration secondary to above (4)

#### PATHOLOGIC DISCUSSION

**Dr. Schultz:** Before beginning the discussion on this case, I would like to thank Dr. Heinrichs for coming all the way from Watertown to be the guest discussant for this very difficult but

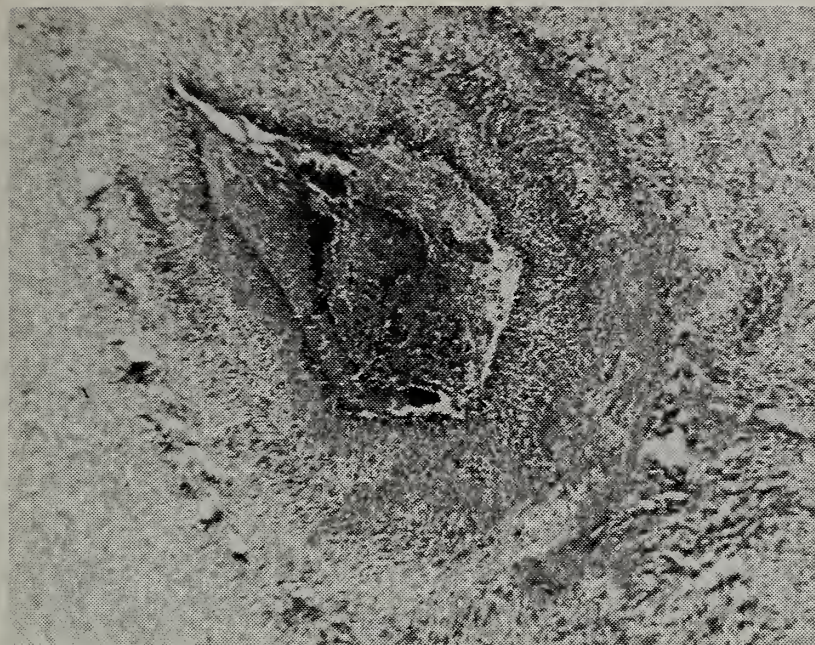
interesting case. At autopsy the chief abnormalities were confined primarily to the heart and lungs. The heart was slightly enlarged, weighing 60 grams and showed dilatation of all chambers. The normal heart weight for an infant of this age is 40 gms. The most conspicuous change was a grayish-tan discoloration which occurred along the course of all of the coronary arteries. This was associated with multiple small epicardial hemorrhages. There was about 30 cc. of bloody fluid and clots in the pericardial sac. The lungs were essentially normal except for increased firmness in the right lower lobe. All other organs showed no gross abnormalities.

Microscopically the most prominent change was arteritis involving primarily the small and medium-sized arteries of various sites. The most severe change was noted within the coronary arteries. (Figs. I, II, and III). Here both small, medium, and large coronary arteries as well as small and medium-sized veins were involved by a pleomorphic inflammatory process. This consisted of infiltration of all layers of the vessel wall by round cells and neutrophils. The vessels showed eccentrically thickened walls and areas of edema. The normal intimal, medial, and adventitial architecture was obscured. The inflammatory process was primarily in an exudative and reparative phase, though there were areas of necrosis present. In some foci intimal proliferation and fibroblastic and histiocytic proliferation were noted. The inflammatory process frequently extended into the adjacent tissues about the vessels. A few of the larger sized arteries showed focal thinning of the wall with suggestion of early aneurysmal dilatation. No definite thromboses or evidence of old or recent myocardial infarcts were identified. No giant cells or involvement of capillaries, arterioles, or venules were noted.

A similar though less severe inflammatory process was noted involving the medium-sized pulmonary arteries and veins. In addition there was evidence of round cell infiltration of the alveolar walls of the right lower lobe. There was also some fibrinous exudate and neutrophils scattered within the alveolar spaces of the right lower lobe. Small arteries and veins in the periadrenal fat and fat about the mediastinal and mesenteric lymph nodes showed arteritis. A few of the medium-sized arteries in the renal pelvis were affected, but no involvement of the renal parenchyma itself was noted. The glomeruli, small arteries, and arterioles were normal. The aorta was essentially normal except for a non-specific round cell infiltration and focal

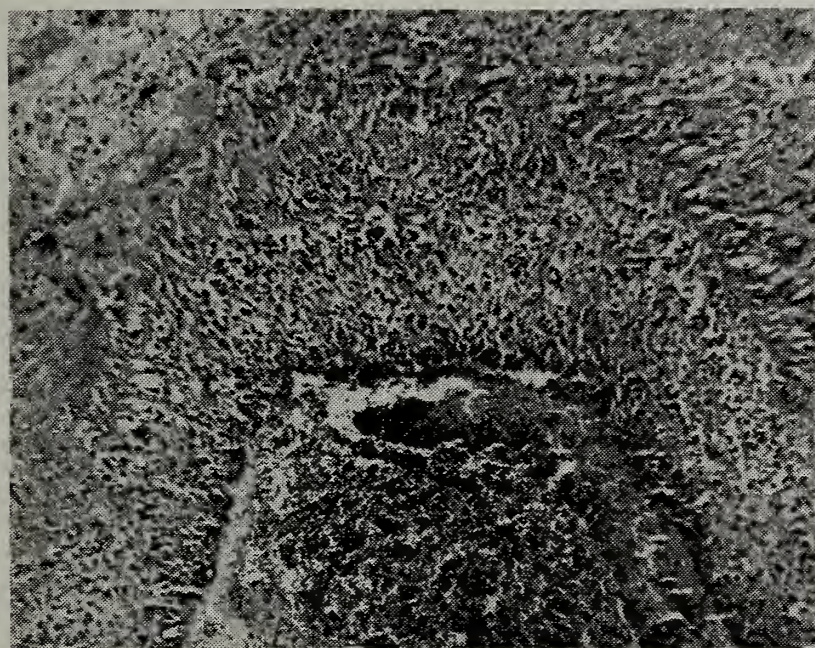


Figure I.



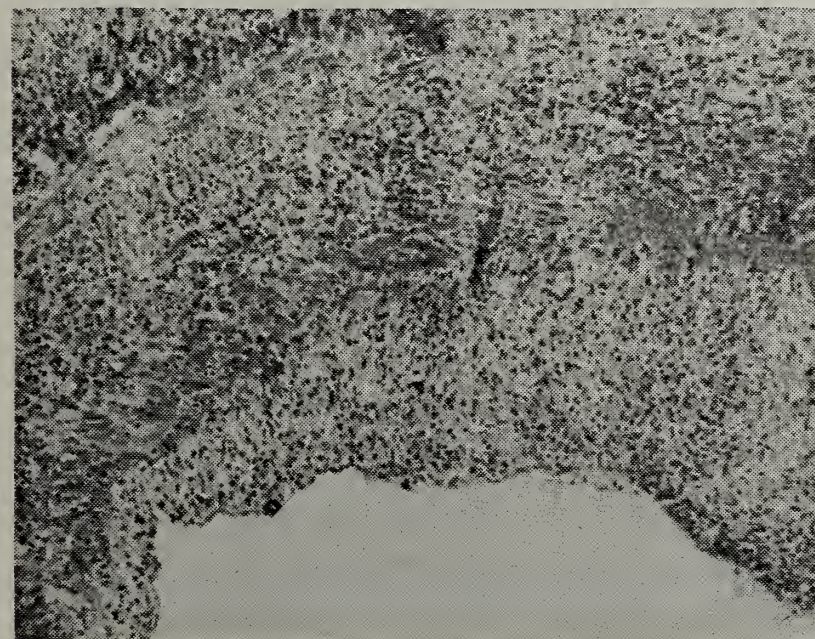
Coronary artery showing diffuse arteritis.

Figure II.



Extensive inflammation of the wall of the coronary artery with infiltration by round cells and neutrophils and focal necrosis.

Figure III.



Coronary arteritis with thickening of wall by intimal proliferation, early reparative fibrosis, and edema.

fibrosis of the adventitia. An occasional medium-sized artery within the adventitia showed arteritis. The spleen showed no involvement of its blood vessels. There were some fibrin and neutrophils on the serosal surface. The blood vessels within the pancreas were also normal. There was some infiltration of the interstitial tissues of the pancreas by neutrophils. No hemorrhage or fat necrosis was identified.

Multiple sections were taken through the meninges and various portions of the brain and spinal cord. No involvement of vessels in this area or evidence of meningitis or encephalitis was identified. Routine sections from the other organ systems were normal.

In summary we have an infant with severe arteritis of necrotizing type primarily affecting coronary arteries but also other vessels as well. Table #1 gives a classification of arteritis. I am going to momentarily skip periarteritis nodosa and discuss the other types of arteritis.

TABLE I.  
CLASSIFICATION OF ARTERITIS\*

- I. Diseases with Necrotizing Arteritis
  - A. Periarteritis Nodosa
  - B. Hypersensitivity Arteritis
    1. Allergic Arteritis
    2. Drug Reactions
    3. Serum Sickness
  - C. Allergic Granulomatous Angiitis
    1. Wegener's Granulomatosis
    2. Lethal Midline Granuloma
    3. Goodpasture's Syndrome
    4. Eosinophilic Granuloma
    5. Löffler's Syndrome
  - D. Rheumatic Arteritis
    1. Fulminant Rheumatic Fever
    2. Some cases of Rheumatoid Arthritis (steroids?)
  - E. Giant Cell Arteritis
    1. Temporal Arteritis
    2. Takayasu's Arteritis
    3. Polymyalgia Rheumatica
- II. Other Diseases with Arteritis
  - A. Lupus Erythematosus
  - B. Dermatomyositis
  - C. Progressive Systemic Sclerosis
  - D. Rheumatoid Arthritis
  - E. Vascular (Anaphylactoid) Purpura
  - F. Infections
    1. Tuberculosis
    2. Syphilis
    3. Pseudomonas
    4. Streptococcus
  - G. Cogan's Syndrome
  - H. Etc.
    1. Arthus Reaction
    2. Schwartzman Reaction
    3. Sarcoidosis (?)
    4. Autoimmune Disease
    5. Ruiters' Angiitis

\*Taken from Owano & Sueper (12)



Hypersensitivity arteritis or allergic angiitis<sup>11, 15, 17</sup> has increased in frequency since the advent of antibiotics, particularly sulfonamides. The clinical course is usually fulminating and unremitting and often less than a month in duration. Less severe cases do occur which may show gradual improvement after removal of the causative antigenic agent. This disease involves arterioles, venules, capillaries, and small arteries. It is usually widespread, but has an affinity for the heart, kidneys, spleen, lungs, and skin. This disease appears to be infrequent in infants and is primarily in adults. In a review of 72 cases by R. P. McCombs<sup>16</sup> the youngest was six years of age. Similar arterial lesions can occur in allergic arteritis, drug reactions and serum sickness.

Allergic granulomatous angiitis of Churg and Strauss<sup>11, 15, 17</sup> is often seen in association with asthma and other allergic states. Duration of the disease is usually months to years and the patients have bouts of fever and eosinophilia. Any size vessel can be involved, but it has a predilection for small arteries and veins. Any site can be involved, but there is a predilection for the lungs, heart and kidneys. As far as I could find in the literature there have been no cases described in infants under the age of one year.

Wegener's granulomatosis may be a variety of allergic granulomatous angiitis. There is usually a predilection for the upper respiratory tract and lung. Granulomas are formed which may or may not be associated with arteritis. Often there is focal glomerulitis present. Again this appears to be a disease of adults. Lethal mid-line granuloma is probably a variety of Wegener's granulomatosis primarily affecting the paranasal sinuses and upper respiratory area without renal involvement. Goodpasture's syndrome is characterized by glomerulonephritis and necrotizing alveolitis with pulmonary hemorrhage. Eosinophilic granuloma and Lof-ler's syndrome may produce pulmonary and upper respiratory symptoms but usually do not have any degree of arteritis.

Rheumatic arteritis,<sup>11, 15</sup> can occur in fulminating rheumatic fever and in some cases of rheumatoid arthritis especially after steroid therapy. With rheumatic fever there is usually a typical history and evidence of the cardinal signs of this disease. There is often valvular disease and myocardial lesions. With rheumatoid arthritis there is often a history of joint involvement. Both of these diseases may produce widespread lesions especially affecting the heart and

lungs, but with primary involvement of the small arteries.

There are other forms of arteritis frequently referred to as giant cell arteritis.<sup>15</sup> These are usually more slowly progressive and not rapidly fatal. There are often granulomatous changes in the medium-sized arteries in association with giant cells. There is predilection for involvement of the temporal arteries, arteries of the aortic arch and retina. These are primarily diseases of adults and to my knowledge are either non-existent or extremely rare in infants.

The other diseases that I have listed on the table can occur with arteritis, but usually do not have necrotizing features. I have listed these only for completeness sake and will not discuss them. I believe that they can be ruled out either by the clinical findings of this case and/or the pathology present.

I feel that this case has all the features necessary to make the diagnosis of periarteritis (polyarteritis) nodosa. Though rare, periarteritis nodosa does occur in infants under the age of one year.<sup>8, 9, 10, 14</sup> As of 1968 there were 24 cases reported in the literature. All have had very similar clinical findings (Table #2). A pre-mortem diagnosis has been extremely rare, being made in only one of the reported cases. However, the signs and symptoms are characteristic enough that a presumptive diagnosis is possible during life and proper treatment could be initiated.

**TABLE II.**  
**COMMON SIGNS AND SYMPTOMS OF INFANTS**  
**WITH PERIARTERITIS NODOSA**

	Number of Patients
Fever*	21
Leukocytosis*	21
Upper Respiratory Infection*	19
Skin Rash*	17
Anemia*	17
Gastrointestinal Infection*	16
Conjunctivitis	10
Edema	9
Cardiomegaly	9
Pharyngitis*	7
Central Nervous System Symptoms*	6

\*Present in our case

Periarteritis in infants predominantly involves the coronary arteries (Table #3). Other small and medium-sized vessels can be involved but less commonly. Histologically there are various stages of arteritis and often varying ages of lesions being either necrotizing, exudative or reparative in type. The coronary arteries and other vessels involved may be occluded or may



form aneurysms. There may be associated infarcts of the supplied viscera. The disease is usually progressive and follows an unrelenting course with death occurring in a few days to several months. The average time from onset of symptoms to death is less than one month. The disease may be a cause for sudden death in infancy. Usually these patients die from cardiac failure.

**TABLE III.**  
**PATHOLOGIC FINDINGS IN INFANTS WITH PERIARTERITIS NODOSA**

	Number of Cases
Arterial Involvement (Arteritis)	24
Coronary*	22
Renal*	12
Periadrenal*	10
Mesenteric	7
Splenic	4
Pancreatic	4
Pulmonary*	3
Cardiomegaly*	16
Coronary Artery Aneurysms	13
Myocardial Damage	10

\*Present in our case

In retrospect this case does have many of the clinical features and pathologic findings that have been reported in periarteritis nodosa affecting infants under the age of one year. I believe we now have the 25th case reported in the literature.

#### FINAL DIAGNOSIS:

1. Periarteritis Nodosa (Acute Necrotizing Arteritis), involving:
  - A. Heart (Coronary Arteries)
  - B. Lungs (Pulmonary Arteries)
  - C. Kidneys (Medium-sized Arteries)
  - D. Adrenals (Periadrenal Vessels)
  - E. Other Small and Medium-sized Vessels
2. Other Findings
  - A. Focal Pneumonia (Right lower lobe)
  - B. Focal Pancreatitis

**Dr. Heinrichs:** The pathological presentation without a doubt was a surprise to most of us here. It proves several axioms. First of all, one of my good friends Harry W. Farrell\* says: "If you do not know what it is, think of periarteritis." Secondly, hindsight is sometimes less than 20/20. Thirdly, it shows that a grave clinical picture can be caused by a minute pathological lesion, which escapes detection. I am amazed by the minimal neurologic pathological findings in contrast to the symptoms this child had. And the pathologists are certainly to be congratulated on having found the cause of this illness.

I am, however, at a loss as probably everybody else in this room is, as to why this child had none of the symptoms one would expect with this disease, namely palsies of the peripheral nerves, kidney involvement and skin and subcutaneous manifestations other than the erythema. Since all other symptoms this child had cannot be explained on the basis of the pathological findings and since Spiegel<sup>7</sup> and others referred to the trigger mechanism in periarteritis nodosa by other intercurrent or incidental infections, I wonder if this child had perhaps a rubella or an ECHO-virus infection first which started this disastrous chain of events. In the absence of viral studies we will never know.

**Dr. Schultz:** To clarify Dr. Heinrichs' questions, I would like to re-emphasize that polyarteritis nodosa does not manifest itself clinically or pathologically in infants as it does in adults. The signs and symptoms may be just as confusing in both, but the pathology differs. In adults multiple organ systems are involved.<sup>13</sup> In infants it appears to be chiefly the heart and specifically the coronary arteries that are involved.<sup>8, 9, 10, 14</sup>

On the second question that Dr. Heinrichs raises, there are many authorities who feel that the necrotizing arteritides (including periarteritis nodosa) may be on an allergic or hyperimmune basis.<sup>11</sup> Some of these diseases occur in patients with allergic histories, while others occur secondary to various drugs and other antigens. Many of the arteritides have a preceding history of some upper respiratory tract infection or non-specific infection often simulating a virus disease. Dr. Heinrichs' hypothesis of this case being triggered by a virus is very interesting and in line with present theories. There may well have been an associated rubella infection. However, there is no way we can rule it in or out in this case.

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# ECONOMICS



## THE STATUS OF REGIONAL MEDICAL PROGRAMS IN SOUTH DAKOTA

Robert Hayes, M.D.\*

There are those among us who asked me to write a word about Regional Medical Programs which, to most people, would be recalled as "that government program" which was to take the place of the DeBakey Plan. I have purposely waited until I could gain enough knowledge about the whole concept of Regional Medical Programs; until I could demonstrate to you how a project is thought of, conceived, developed, reviewed, and funded; and until I had some vision of how the whole program would progress.

The network of "Regional Centers" recommended earlier by the DeBakey Commission was replaced by a concept of "Regional cooperative arrangements" among existing health resources. PL 89-239 is intended to assist our medical institutions and professions in capitalizing on the rapid advances of scientific medicine in the prevention, diagnosis, treatment, and rehabilitation of patients afflicted with heart disease, cancer, stroke, or related diseases.

"The Grants authorized by the Act are to encourage and assist in the establishment of research institutions, hospitals, and other medical institutions and agencies to achieve these ends by research, education, and demonstrations of patient care. Through these means, the programs authorized by the Act are also intended to improve generally the health manpower and facilities of the nation."<sup>1</sup>

The intent of the Act is built upon the following basic premises and assumptions:

1. The program will utilize and build upon existing institutions and manpower resources.

2. The active participation of practicing physicians is essential to the success of a regional medical program.

3. The purposes can best be achieved through initiative, planning, and implementation at the regional level under conditions which encourage innovative approaches and programs specifically designed to deal with the diversity of **needs, resources** and existing patterns of education and service.

4. Cooperation among all essential elements of the health resources in a region is an essential means of coping with the complexities, specialization, high cost, manpower needs, and educational and training needs which are the by-products of the dynamic advances of medical science. The objectives of the Act will not be achieved by a program which serves the interests of a single category, institution, or organization. A basic aim of the program is to overcome fragmentation and insularity. Thus, any project must show a cooperative arrangement between any two or more Health Facilities in the Region.

5. In order to insure an effective linkage between research advances and improved patient care, it is desirable to establish a continuing relationship among the research and teaching environment of the medical center, the patient

<sup>1</sup> "Regional Medical Program Revised Guidelines." January 19, 1968, par. 2, page 6.

\* University of S. D., Medical School, Vermillion.



care activities involving the community hospital, and practicing physician. The impact of research advances on the development of high quality patient care has typically been most direct in the university medical centers or other medical centers which combine extensive research teaching and patient care activities. The primary benefits of this interrelationship, however have often been confined to the medical center itself and affiliated hospitals. A basic premise of the Act is the desirability of extending this productive interrelationship to additional hospitals and to practicing physicians through the establishment of regional cooperative arrangements. [This obviously cannot be accomplished with the limited funds available to the local communities.]

6. The financing of patient care is not the objective of the Regional Medical Programs. The payment of patient care costs is limited to those costs incident to research, training and demonstration activities supported by these grants.

7. It is assumed that the development of the full capabilities of a Regional Medical Program will take a number of years. The purpose of the first three years of legislative authorization is to encourage and assist in the planning and implementation of the initial elements and will constitute a learning experience which can be utilized in taking additional steps in the cooperative effort against heart disease, cancer and stroke.

There can be no doubt that the aim of Regional Medical Programs is high. To bring the most modern treatment which we have developed in the past 20 years to areas distant from the great medical centers is something all of us want for our patients. Most physicians viewed a Federal Program with doubt. This was offset by allowing the control to be within the Region and the final decision for program to rest with the local Regional Advisory Council. [Certainly different for a government program.]

The Nebraska-South Dakota Region was formed by your colleagues and its Advisory Council is appended for your reference. Originally we had planned that each of our two states would develop a plan and, after a period, bring the two plans together for submission to Division Regional Medical Programs in Washington for hopeful funding. We shortly found out that Washington had a different idea than this and we were told that we would have to plan as a Region (two states). The Ten Districts which were formed for planning in South Dakota have probably accomplished our aim. Our

sister state formed five Task Forces (Heart, Cancer, Stroke, Continuing Education and Manpower). We combined our two approaches to the problem. In a short time (two years) we began to mobilize our South Dakota Health Team for its cooperative effort with Nebraska. That has now been completed with many of you serving on these Task Forces. A map showing the names of those who have volunteered to serve is appended.

Our program asked all of you in the health fields to submit ideas for projects dealing with Heart, Cancer, and Stroke as you saw the need in your own communities. We had promised that our program would be one which you designed from your needs — a grass roots program. We have had many ideas for projects which certainly are ones which could help us reach the goal of our Regional Medical Program. The growing pains of a new organization attempting to implement a new law have been considerable but have not held back growth entirely. A plan which is hopefully representative of our two states is developing and to this date five (5) projects have been forwarded to Division in Washington, D. C. for approval. Even at this time of writing we do not know whether or not they have been approved for funding. Fifty-one (51) other projects are now in the review process within our own region.

I wish that I could emphatically point to a number of pilot projects, a number of pieces of needed equipment, and some new training programs. Unfortunately, I am unable to tell you anything except that we are slowly and painfully getting started. I, too, am concerned that we have no concrete evidence of what Regional Medical Programs can do in our two states. This I will remind you, however, is chiefly our own doing at this point — not that of Washington. I do not hold that we could have done differently because I am concerned that, even when our two states are able to agree upon program possibilities, PL 89-239 is written in such a way that some of us question how it is going to accomplish any of the aims unless the government plans to provide funds for equipment and programs. To provide the programs envisioned the government apparently plans, under the present Regional Medical Programs Guidelines (which constantly change), to make the bigger medical centers bigger since it turns its back upon a primary need—that of funds for equipment and programs in the smaller medical communities (those smaller than our only metropolitan area



— Omaha). It is obvious that if a community had these necessary monies there would be no need for Public Law 89-239.

My primary concern, as you may note, is that, even as we now get our own house in order, the program which we conceded was worthy of our support may not be able to be delivered. The single fact that it does not intend to assist communities with needed equipment seemed to be a weakness with which many of us were concerned since we felt that it was the legislative intent. Yet in the matter of Intensive Coronary Care equipment the local communities seem to have been able to procure the same. Perhaps this will hold true for the entire program and our fears are unfounded.

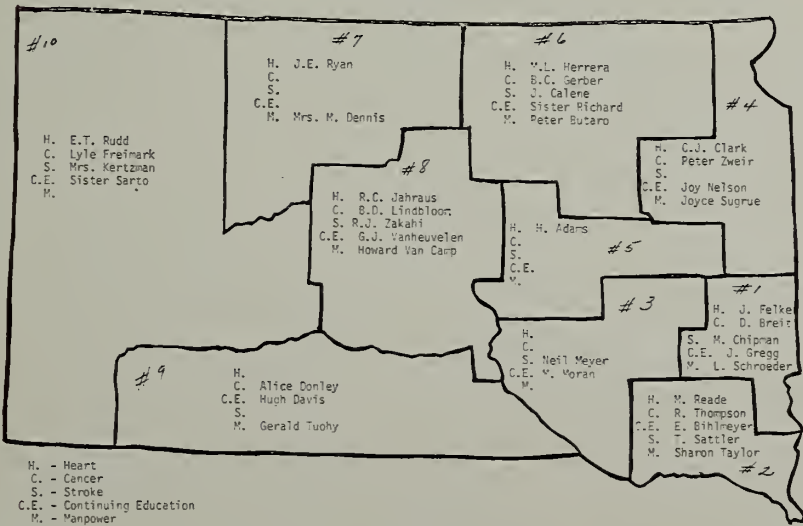
One thing that Regional Medical Programs has already accomplished which is to its credit is funding for medical planning. To my knowledge this luxury has never been possible for us in South Dakota and I think all will agree it was sorely needed.

In conclusion, no one knows what the Federal Government will do since Administration changes are forth coming and with them — changes in policy. The South Dakota Health Team, properly led by South Dakota physicians, has developed a program and many hours have been spent. I have confidence that the Regional Medical Program in South Dakota will succeed for that reason alone. I have worked with the South Dakota Health Team for many years and I know what it can do.

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M. A. Auld, M.D., and Willis Stanage, M.D.

Many times high school wrestling coaches forget that they are dealing with a young, growing individual in high school, who is not an adult and as a result has to be treated differently than a more mature college man. Lately there has been criticism of wrestling for crash diets that many wrestlers go through to obtain their certified weight. It is very necessary that a physician certify weights. The examiner who does should take into consideration the height, age, and excess fat a boy carries. A muscular boy should not lose as much as an obese boy. One in attaining weight can readily go into a ketosis or into an electrolyte imbalance. We have seen convulsions in a boy weighing 110 lbs. and trying to lose to 105.

The average daily requirement in 13-15 year-old boys is 27 calories per pound and at 15 years to adulthood 23 calories per pound.\* Therefore, a boy weighing 100 lbs. should have 2300 - 2700 calories. How many coaches do you believe could lose on a 2700 calorie diet?

Periods of rapid growth and development near puberty require increased caloric consumption. The average distribution of calories in a well-balanced diet is protein 15%, fat 35%, and carbohydrate 50%.\* A "crash" diet to lose weight usually is an unbalanced diet.

The purpose of letting a young boy wrestle up one weight class one week and down the next in the rapidly growing boy can be harmful. The mature and older boy, like a college man, can take it without physiological damage. However, in high school wrestling one must consider all weight classes and rules that apply to one weight class should apply to all.

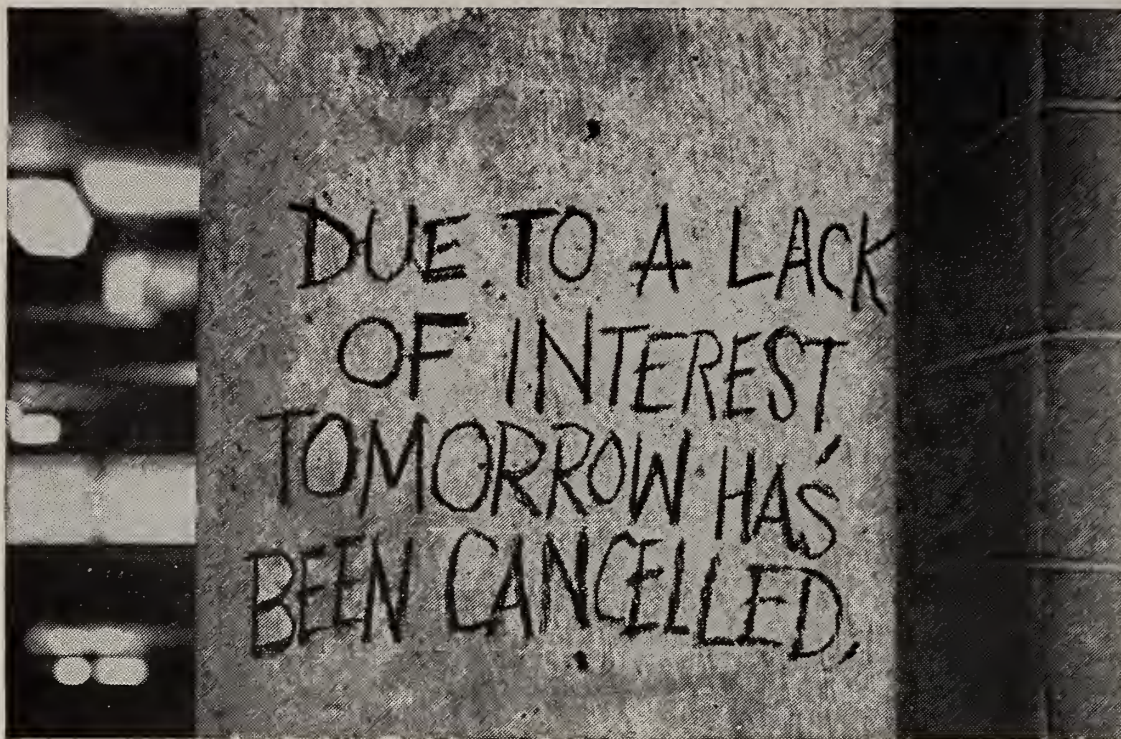
A boy weighing 109 lbs. should not be asked to wrestle 112 one week and 103 the next with but few exceptions. A boy doing so would lose 6% of his body weight in one week. This is not healthy. A wrestler should be at the weight he intends to wrestle by January 1. This gives a boy two months to obtain this weight group and prevent crash dieting. The rule stating a boy can only wrestle above his weight group twice after January 1 is sound by the foregoing medical reasons. It is true that it will penalize the large schools and a few of the small schools who have older, maximum growth boys in the lower weights who could with dehydration and sweating stay in shape without a health hazard. The rules are made to help the boy and not the team or coach. A boy on a good diet will:

1. Maintain a higher scholastic standing
2. Be less irritable
3. Sleep better
4. Be of better health

Yes, it takes two grams of carbohydrate to burn one gram of fat, and a dieting growing boy will take the carbohydrate from his muscle.

\* Nelson, Waldo E.: **Textbook of Pediatrics**, Saunders Company.





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# MEDICAL ASSOCIATION

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News Notes • Changes • Births • News

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## Pop's Proverb

Treat the patient, not the disease.

**Ted Hohm, M.D.; C. F. Gryte, M.D.; and W. B. Odland, M.D.** participated in a workshop on upper respiratory conditions with emphasis on the hazards of smoking sponsored by the Huron District American Nurses Association.

\* \* \*

**B. T. Lenz, M.D.,** Huron, and **B. T. Otey, M.D.,** Flandreau, attended the World Conference on Cancer of the Uterus held in New Orleans.

\* \* \*

The American Academy of General Practice has re-elected **Alvin R. Scheffel, M.D.,** Redfield, to active membership in the Academy.

**L. E. Savage, M.D.,** Yankton, spoke to members of the local Slim Tops Club on organ transplants, from skin to heart transplants.

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CONTRIBUTION  
TO THE  
SOUTH DAKOTA  
MEDICAL SCHOOL  
ENDOWMENT  
FUND  
IS NEEDED**

The South Dakota House of Representatives sponsored a resolution commending **G. W. Mills, M.D.,** Wall, for 50 years in the medical profession in South Dakota and 21 years of service in the House of Representatives.

\* \* \*

Members of the Yankton Rotary Club heard **Robert F. Thompson, M.D.** answer questions about heart and circulatory diseases.

\* \* \*

**Arthur Reding, M.D.,** Marion, was appointed to a one year term on the Committee on Mental Health of the American Academy of General Practice.

\* \* \*

The Seventh International Congress of Diabetes will be held in Buenos Aires, Argentina, in honor of Professor Bernardo Houssay, from August 23-28, 1970.



Sioux Falls Rotary Club members heard **R. B. Leander, M.D.** speak on the importance of early psychiatric treatment.

\* \* \*

**Robert Bartron, M.D.**, Watertown, and four college students at a meeting in Pierre discussed a legislative internship program for both graduate and undergraduate students.

**T. P. Roman, M.D.** and **Jerry Walton, M.D.**, Martin, participated in a panel discussion on "Problems in Venereal Disease Control," sponsored by the Presbyterian church.

\* \* \*

**T. R. Anderson, M.D.**, and **L. H. Amundson, M.D.**, Sioux Falls, attended tutorial sessions sponsored by the Commission on Professional and Hospital Activities in Ann Arbor, Michigan.

The Seventh District Medical Society at its March meeting heard **Robert Hayes, M.D.**, Vermillion, speak on "Recent Developments in the Regional Medical Program."

\* \* \*

**B. C. Gerber, M.D.**, Aberdeen, participated in a discussion on "Morals in Medicine" at a local meeting of the American Association of University Women.

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20th Symposium

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DATE: July 14-18, 1969

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LOCATION: Marriott Motor Hotel, Philadelphia, Pa.

# ELEVENTH ANNUAL MIDWEST INTERPROFESSIONAL SEMINAR ON DISEASES COMMON TO ANIMALS AND MAN

Memorial Union, Iowa State University, Ames, Iowa, **September 22-23, 1969.**

Dr. Vaughn A. Seaton, Professor and Head, Veterinary Diagnostic Laboratory, College of Veterinary Medicine, Iowa State University, Ames, Iowa 50010, Chairman.

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## THE MONTH IN WASHINGTON

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The American Medical Association told Congress that the Internal Revenue Service acted arbitrarily and completely ignored the facts in imposing a tax on revenue from drug advertising in journals of tax-exempt medical associations.

Bernard D. Hirsh, AMA general counsel, testified before the House Ways and Means Committee, that the relation between the tax-exempt purposes of a medical association, national or state, and the drug advertising in its journal is self-evident.

"Drug advertising alerts and stimulates the physician's interest in new drugs as they become available, and also serves to remind him of the broad spectrum of useful time-proven drugs," Hirsh said. "Obviously physicians should not and do not rely upon drug advertisements as their principal source of information, but drug advertisements often provide an important step in the process through which physicians become educated in the therapeutic value and risks of new drugs and a wider variety of useful drugs . . . .

"No other advertising provides as much complete and objective information."

Hirsh said the IRS regulations taxing medical associations on their advertising revenues represents an attempt to change the law without congressional action. The IRS officials made a mistake, he said.

"We urge that this mistake be rectified expeditiously and in the most practical way possible," Hirsh said.

Spokesmen for numerous other tax-exempt associations joined the AMA in opposing the tax on their advertising revenues. These included the American College of Physicians, the American College of Obstetricians and Gynecologists, the American Psychiatric Association, the

American Dental Association, the Boy Scouts of America, the Girl Scouts of America, the American Chemical Society and the Society of National Association Publications.

Representatives of commercial publishing firms contended in testimony before the committee that the previous tax exemption gave the journals of the associations an unfair advantage in competition for advertising dollars. When the IRS announced the new tax regulations 15 months ago, it stated that the purpose of the regulations was not to raise federal revenue but to remove a competitive advantage of the tax-exempt associations.

In an announcement not directly connected with the House committee hearings, the IRS said it also is considering taxing the income tax-exempt associations get from rental of exhibit and display space at conventions.

\* \* \* \*

A special advisory committee urged an extensive national program to combat alcoholism.

The National Advisory Committee on Alcoholism said in an interim report that attention should be given to alcoholism problems in all federally supported health and welfare programs. The committee also recommended:

Elimination by hospitals of discriminatory policies denying admission to alcoholic patients; health insurance coverage for alcoholics; increased support for research; prevention and control of alcoholism as a vital part of national highway safety programs.

The advisory committee provides advice and guidance to the Secretary of Health, Education and Welfare concerning the department's activities related to alcoholism. Robert Straus, Ph.D., professor of medical sociology at the University of Kentucky Medical School, is chairman of the committee. It was created in Oc-



tober, 1966. Its members represent all sections of the country and include experts from the fields of medicine, psychiatry, sociology, vocational rehabilitation, law, and public health.

"The magnitude of the problem is enormous," Dr. Straus said. "Our country has more than five million alcoholics. Their suffering alone is intolerable, but the need for increased action is made even more imperative by the fact that affected families may include as many as 20 million Americans."

He also pointed out that alcoholism has a tremendous impact on business, causing absenteeism and loss of productivity.

\* \* \* \*

The National Institute of Mental Health awarded a first-year grant of \$250,000 for a major alcoholism research program at the State University of New York, Downstate Medical Center, New York, N. Y.

The five-year program will include experimental and clinical studies, training, and drug trials. In one study, 60 newly admitted patients between the ages of 25 and 55 with at least a five-year history of alcoholism will be studied to determine the effects of experimentally induced intoxication and withdrawal on the subjects' sleep patterns, behavior and biochemistry. The investigators will focus upon the mechanisms underlying the development of physical and psychological dependence.

Among the drugs to be tested are haloperidol, dexoxadrol, disulfiram (antabuse), paraldehyde and chlordiazepoxide alone and in combination with a tranquilizer and an antidepressant.

\* \* \* \*

The federal government is planning to launch a five-year, nationwide program of inoculation against rubella, or German measles, as soon as a vaccine is licensed and available in sufficient quantities. It is expected a vaccine will be available by next fall.

Two drug manufacturers had announced before March 1 the development of a vaccine. Two others were developing one. Merck & Co., Rahway, N. J., was the first to announce completion of testing of such a vaccine. The Merck vaccine, which is of the HPV-77 strain, was reported 95 percent effective in vaccination of 18,000 children and adults. Merck also has been testing a one-shot vaccine against German measles, common measles and mumps.

PEPI Inc., New York, N. Y., said that it had developed a modified live virus vaccine, also of the HPV-77 strain, for the disease and that, after being licensed, it would be marketed by Philips

Roxane Laboratories and Parke Davis & Co. PEPI said initial production would be primarily a single-dose vaccine for use in pediatric practice, but that later production would include dosage forms suitable for government-sponsored mass-vaccination programs.

The other two companies developing a rubella vaccine are Smith, Kline & French Laboratories, Philadelphia, and Eli Lilly & Co., Indianapolis. Eli Lilly has been developing a HPV-77 strain. Smith, Kline & French was working on a Cendehill strain. It had proved 95 per cent effective in inoculations of more than 25,000 persons, according to the manufacturer. Another vaccine, using a rubella strain RZ 27-3, has been developed at the University of Pennsylvania.

\* \* \* \*

Rep. Ancher Nelson (R., Minn.) has introduced legislation calling for the same federal tax treatment for professional corporations of physicians organized under state law as for business corporations.

"We are overdue in acting to guarantee this same right of organization to professional persons that we have always given other forms and types of businesses," Nelson told the House.

He noted that the federal government's so-called Kintner regulations issued in 1960 primarily keyed taxation of professional corporations to state law.

"As a result," he said, "many states, Minnesota included, passed laws enabling incorporation under these regulations. Assuming the air was cleared, many corporations were formed. However, in 1965, the Internal Revenue Service issued new regulations reversing its position, which if upheld, make it almost impossible to create a professional corporation, regardless and in spite of state laws permitting the same.

"No business can operate without some basis of continuity of the ground rules. If any set of rules should be stable, the rules governing the basic tax classification of businesses for tax purposes should be stable and not subject to administrative whim. Businesses, almost without exception — except for the professions with which this bill deals — are now allowed to decide whether to adopt the partnership, association or corporate form under applicable state laws. There is no logical reason for denying this choice to persons who are rendering personal services in the medical or legal fields. Fairness and equity in application of the federal income tax laws demands that all businesses be treated alike in this sense.



"The only apparent reason for the 1965 amendments to the regulations was to prevent a possible reduction in federal revenues. I am certainly convinced that this is not an adequate reason for ignoring years of legal precedent and congressional intent in this field. Furthermore, the providing of health, pension and profit-sharing plans through tax incentives under the corporate structure is a worthy objective and a legitimate use of the tax laws. Indeed, I am advised that any possible total tax revenue loss will be minimal when it is realized that most profits will be ultimately taxable, even though such taxation might be immediately deferred.

"The position taken by the Internal Revenue Service in 1965 is untenable. It violates fairness, equity, reasonableness, years of legal precedent, and the intent of Congress as to the tax treatment of business organizations operating legitimately under state law. I would urge all my colleagues to support hearings and passage of this needed legislation at the earliest possible date."

\* \* \* \*

Sen. Clinton Anderson (D., N. M.) introduced a bill to tie medicare and medicaid payments to hospitals and nursing homes to local Blue Cross allowances. The bill complements a measure introduced by Sen. George D. Aiken, (R., Vt.) earlier this year which ties physicians' charges to Blue Shield schedules. Aiken co-sponsored Anderson's bill. Co-sponsoring both bills are Sen. Mike Mansfield, (D., Mont.) and Sen. Winston L. Prouty (R., Vt.). Anderson co-sponsored Aiken's bill.

Anderson also said he supports the idea of Sen. John J. Williams (R., Del.) that Congress should give medicare and medicaid programs a close look, perhaps a full-dress investigation.

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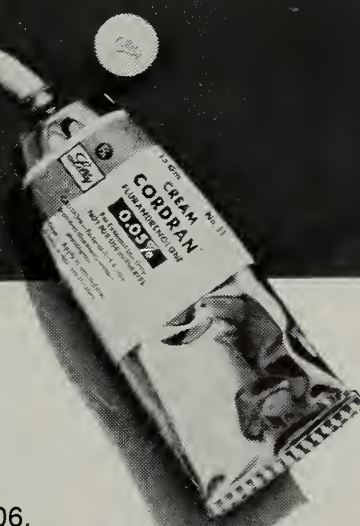
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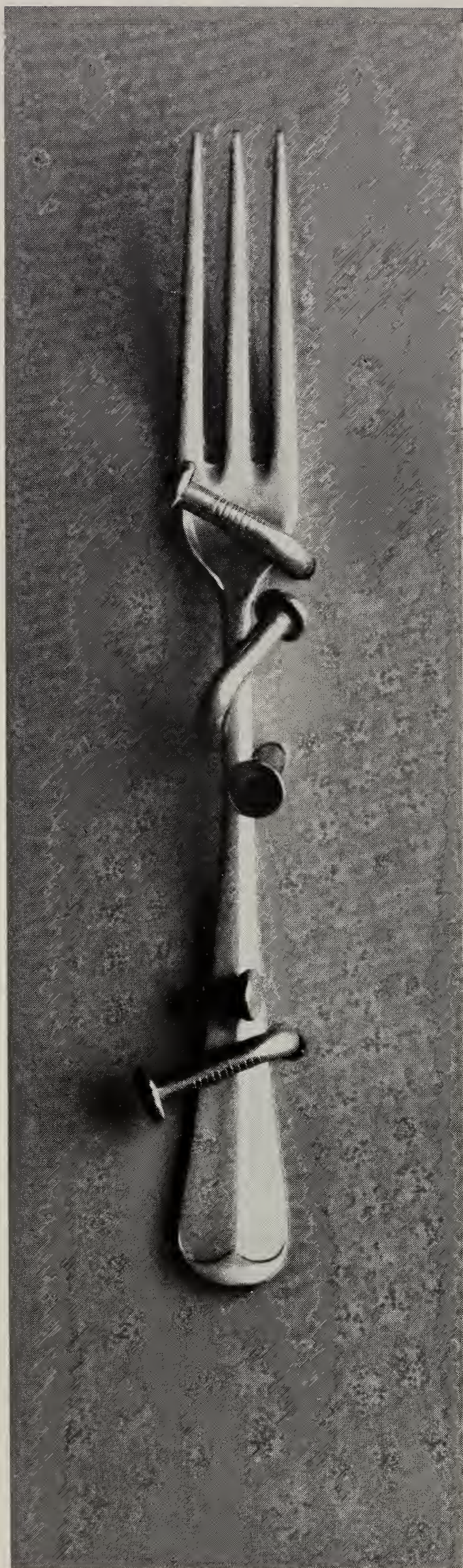


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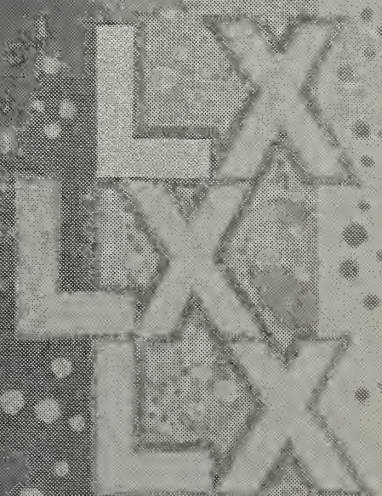


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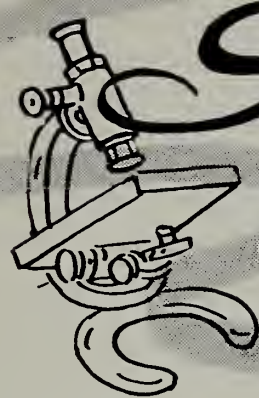
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# Scientific

## PAPER

### STUDIES DEMONSTRATING THE EFFECTIVENESS OF ISONIAZID IN PREVENTING TUBERCULOSIS

By Irvin S. Belzer, M.D.  
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The following items of data support the concept of isoniazid prophylaxis and the use of isoniazid in individuals for the purpose of preventing the occurrence of active tuberculosis. For some topics the use of isoniazid is not discussed; rather the natural course of a positive tuberculin reaction (that is, a tuberculous infection) is outlined, and the value of isoniazid is implied. It is on the basis of such data as outlined below that the South Dakota State Department of Health and the South Dakota State Medical Association have issued their combined statement on "Chemoprophylaxis for the Prevention of Tuberculosis." In all cases, unless stated otherwise, a positive tuberculin reaction referred to 5 mm or more of induration to 5 tuberculin units of intermediate strength Purified Protein Derivative. Also, Isoniazid (INH) dosage was 5 mgm/kgm body weight, and did not exceed 300 mgm daily.

#### Studies Relating to Recommendations For "Exposed, Tuberculin Negative Contacts"

1. Ferebee and Mount<sup>1</sup> in a double blind study of close contacts to active cases found that among initially tuberculin negative child contacts, 16 cases of TB developed in about 2,200 persons on placebo and only 5 cases in persons on INH. In addition, they calculated that the risk rate among non-infected contacts of all ages was 49 cases/100,000 contacts, compared to a "normal" risk rate of 5 cases/100,000 non-infected persons in the United States.

2. Dormer et al<sup>2</sup> prophylactically treated infants of mothers with active tuberculosis in different stages of their therapy. During the observation period the infants were kept with their mothers and many were being breast fed at the time. No cases of active TB occurred in the infants.

3. Egsmose et al<sup>3</sup> in double blind studies on initially tuberculin negative contacts showed a) that the incidence of tuberculin conversion was reduced from 13.19 conversions/1,000 placebo contacts to 5.7 conversions/1,000 INH contacts, b) that the rate of development of pulmonary lesions was reduced from 4.3/1,000 placebo contacts to 1.86/1,000 INH contacts, and c) that the subsequent excretion of tubercle bacilli by converting contacts was reduced from 3.8/1,000 placebo contacts to 0.0/1,000 INH contacts.

4. Steinfield and Cohen<sup>4</sup> treated 442 household contacts with INH (10 mgm/kgm) for two years, regardless of the skin test results. In three years there were no cases of new active tuberculosis from this group.

#### Studies Relating to Recommendations on "Exposed, Tuberculin Positive Contacts"

1. Egsmose et al<sup>3</sup> showed via double blind studies that in close contacts with initially positive tuberculin reactions and various types of pulmonary lesions, the subsequent excretion of tubercle bacilli was reduced from 21.4 cases/1,000 placebo-treated contacts to 0.0 cases/1,000 INH-treated contacts.



2. Ferebee and Mount<sup>1</sup> in their study on household contacts found that the breakdown rate of placebo-treated tuberculin positive persons was approximately 140/100,000. In infected adults on INH, this rate was reduced over four-fold to 33 cases/100,000.

3. Zorini<sup>5</sup> found that 2.14% (21.4 cases/1,000 contacts) of his initially tuberculin positive household contacts developed tuberculosis compared to 0.13% (1.3 cases/1,000 contacts) of those treated with isoniazid.

#### **Studies Relating to Recommendations on "Persons With Inactive Tuberculosis"**

1. Comstock<sup>6</sup> in a double blind study in Alaska on 2,400 persons with previously treated active TB or non-treated active TB found a 1.36% per year reactivation rate for the placebo-treated group, and 0.43% per year for the isoniazid-treated group.

2. In a six year follow-up report of the same Alaskan study, Comstock et al<sup>7</sup> showed that 4.5% of the placebo-treated inactive group experienced relapse, compared to only 0.5% of the isoniazid-treated inactive TB group. In the placebo group, the rate of breakdown for the non-infected group was 2.2%, for the infected 5.6%. In the INH group, the breakdown rate was 0.3% for non-infected, 0.6% for infected.

3. Katz et al<sup>8</sup> treated 516 patients with inactive TB in double blind fashion, reporting a total of 49 relapses over seven years in the placebo group, and 26 in the INH-treated group. During the first three years, 33 cases had developed in the placebo group and 13 in the INH group.

4. Comstock<sup>9</sup> in 1962 showed that of slightly over 1,000 persons with inactive TB, the risk of relapse over a five year period is 2 per cent per year for Whites, 3 per cent per year for Negroes; 1 per cent per year for Whites under 45 years of age, 3 per cent per year for Negroes under 45 years; and 0.04 per cent per year for Whites over 45 years old.

5. Litwack and Gardner<sup>10</sup> reported on the follow-up of 343 cases of TB in Long Beach which had been called inactive by the usual criteria. The relapse percentage for the whole group was 8.03%, with 25 of the 31 relapse cases having received chemotherapy for less than two years.

6. Grzybowski et al<sup>11</sup> reviewed inactivated cases of TB dating back to 1930. They calculated the relapse rate among those never receiving drugs as 2.5 per cent per year; those who took only streptomycin and PAS (a "poor drug

regimen") as 1.6 per cent per year; and those who took isoniazid with either streptomycin or PAS (a "good drug regimen") as 0.1 per cent per year. Over a 25 year period, these numbers represent a relapse rate of 62.5% for the no drugs group; 40% for the "poor drug" group, and 2.5% for the "good drug" group.

7. Similarly, Phillips<sup>12</sup> followed 109 TB patients for six years after they were inactive. The relapse rate after six years for those taking drugs under 18 months was 21% (3.5% per year); for those taking drugs 18-24 months, 16% (2.7% per year); and for those taking drugs 24-36 months, 4% (0.7% per year). Seventeen patients who took drugs for three years or more had no relapses.

8. Earlier, Phillips<sup>13</sup> had reported on 312 TB patients followed for three years after discharge from the hospital. Over 70% of them had not been treated; the remainder had been poorly treated. The relapse rate was 25.6% (that is, 80 patients) over the three years. The relapse rates based on extent of disease were 14% for the minimal category; 24% for the moderately advanced; and 32% for the far advanced.

9. Fuehs<sup>14</sup> reported on over 3,200 TB patients declared inactive and followed for at least five years. Those adequately treated had a 2% relapse rate (0.4% per year for five years); those with a poor regimen had a 7% relapse rate (1.4% per year); and those who were uncooperative and got no therapy had a relapse rate of 37.5% (7.5% per year).

10. Ferebee et al<sup>15</sup> found a reactivation rate of 13 cases per 1,000 persons in a non-treated inactive TB control group, compared with 2.5 cases per 1,000 persons for the isoniazid-treated inactive TB group. In their extensive study in mental institutions, they found among 25,000 participants that in the placebo group, old reactors with abnormal chest X-rays had reactivations at the rate of 300 per 100,000 per year, while reactors with normal chest X-rays had reactivations at 80 per 100,000 per year. By age groups these latter reactivations were as follows: age 15-34, 200 per 100,000 per year; age 35-54, 70 per 100,000 per year; and age 55 and over, 60 per 100,000 per year. Isoniazid prophylaxis decreased the rate two to four-fold in each age group.

11. In a review article Stead<sup>16</sup> outlines the cogent arguments for the concept on a long latent period in tuberculosis between the time of initial infection and eventual breakdown. Stead also points out that in the 1930's, patho-



logists were able to grow out viable tubercle bacilli from "inactive" lesions in persons dying from non-tuberculous causes.

12. In a Veterans Administration study, Phillips<sup>17</sup> found that of 210 patients followed for six years after being declared inactive, 6% (13 patients) had reactivated their disease, of 81 patients on less than two years of chemotherapy, nine had reactivated; of 127 patients on two - three years of chemotherapy, four had reactivated; of 37 patients on three plus years of chemotherapy, none had reactivated.

13. Groth-Peterson et al<sup>18</sup> reported on an extensive four year follow-up program on 795,000 adults in Denmark, where tuberculosis reporting is very accurate. At the end of four years, 878 new cases of TB developed — 76% from the tuberculin positive group. Adults with positive skin tests and negative chest X-rays had an average annual breakdown of 27/100,000 persons per year; those with positive skin tests and positive X-rays had a rate of 51/100,000 persons per year; those with positive skin tests and suspicious X-rays had a rate of 370/100,000 persons per year.

#### **Studies Relating to Recommendations on "Special Clinical Situations"**

1. Johnson and Davey<sup>19</sup> have reviewed numerous animal studies and case reports indicating that active tuberculosis does occur among infected animals and persons who are placed on long term steroids.

2. Both Esperson<sup>20</sup> and Stephanopoulos<sup>21</sup> have reported numerous cases of active tuberculosis occurring in patients on steroids for rheumatoid arthritis, sarcoidosis, lupus erythematosus and polyarteritis.

3. Chafner and Love<sup>22</sup> reported in a series of 250 consecutive tuberculosis patients that 17 (or 6.8%) had had surgery (i.e. gastric surgery) prior to development of their tuberculosis. From their review of the literature these authors also concluded that 3% of TB patients have had gastrectomies and that 2% of gastrectomy patients will develop tuberculosis.

4. Allison<sup>23</sup> reviewed 21 patients with pulmonary tuberculosis and gastrectomy and found that 17 had never had TB prior to surgery and that four had reactivated previously inactive disease. He postulated poor nutrition as the basic etiology.

5. Waingortin and Lorge<sup>24</sup> reviewed 27 patients with active TB and gastrointestinal disease. Of these, 12 had had gastrectomies for ulcers; in turn four of these had had ulcer symptoms prior to the time TB developed while

seven had TB symptoms prior to the ulcer. The authors lay the relationship to physical and emotional distress.

6. Borner<sup>25</sup> reviewed 906 TB patients in Swedish hospitals and found that 4.7% had ulcer symptoms and that 2.5% had had gastrectomies. Over 80% of the ulcer symptom patients had developed their TB after gastrectomy. The author followed 395 TB patients over a 20-25 year period and found a death rate of 16 in patients who had had gastrectomy, compared to an expected death rate of 5.2. Various factors may account for this mortality rate but it correlates directly with TB and gastrectomy.

7. Parker et al<sup>26</sup> in 1932 reported that 30% of Hodgkin's disease patients also had tuberculosis. However, 34 years later Arden and Rottino<sup>27</sup> did 162 autopsies on patients with Hodgkin's disease and found only five cases who had died of miliary tuberculosis. Part of the decrease in incidence reflects the over-all decrease in TB. Haynes and Begg<sup>28</sup> have also reported two cases of patients with lymphomas who died of miliary tuberculosis once steroids or chemotherapeutic agents were used in the lymphomas.

8. Boucot et al<sup>29</sup> examined diabetic workers and found 8.4% of the 3,100 persons had active tuberculosis. This large number compares with 4.3% of persons having tuberculosis among 71,800 healthy workers.

9. Holden and Hiltz<sup>30</sup> have also found that the incidence of active tuberculosis is much higher in diabetics of various groups than in their non-diabetic counterparts. They noted that 11% of their TB patients had diabetes and that the diabetes was more severe in those whose TB was greater in extent. Of 13 patients who reactivated, 11 were noted to have diabetes at the time of reactivation.

10. Nichols<sup>31</sup> found that in young men, that is, those under 40, 22% had either frank diabetes or abnormal glucose tolerance tests.

11. In many textbooks of obstetrics, it is stated that tuberculosis worsens during pregnancy; and before chemotherapy was available, it was even suggested that abortion be performed to halt the advancement of the disease in mothers.<sup>32</sup>

12. Rosenbach and Gangemi<sup>33</sup> followed 150 patients through 241 pregnancies and noted that 23 patients showed progression of their disease, while 19 showed remission. However, the authors attributed the progression more to poor medical management than to a direct effect of the pregnancy.



13. Pridie and Stradling<sup>34</sup> reviewed 103 pregnancies in 72 women with inactive tuberculosis (treated and/or not treated). A total of 20 reactivations occurred during pregnancy or the succeeding year. No relapses occurred in those being treated with INH during the pregnancy; all patients who reactivated were not on INH during their pregnancy; and 17 of 20 had never had chemotherapy.

14. Monaco<sup>35</sup> reported that 98% of patients with silicosis have a positive tuberculin reaction and that 63% of these would die with active tuberculosis. In a double blind study he treated silicosis patients with daily isoniazid (10 mgm/kgm) or placebo for three months, alternating with three months of rest, then medication, then rest, etc. At the end of two years, only 0.75% of the INH-treated group had developed tuberculosis while 10.75% of the placebo group had developed active TB.

15. Zorini<sup>5</sup> compared 788 patients with silicosis and a positive tuberculin reaction or recent strong exposure who were treated with isoniazid to a group of 370 silicosis patients who were either tuberculin positive or recently exposed and who were not treated with isoniazid. Only 1.14% of the treated group developed active tuberculosis over one year while 7% of the control group did.

16. Appleman<sup>36</sup> reviewed the case histories of 288 coal miners with active silicotuberculosis and discovered that while most of the men actually developed their active disease after retirement (after age 63), most had evidence of old silicotuberculosis 10-15 years before their reactivations occurred. He cited the need and value of chemoprophylaxis.

17. In the United States the percentage of silicosis patients who have tuberculosis varies from 12 to 62% depending on the criteria, for example, X-ray changes or autopsy, and the incidence of tuberculosis in the geographical area studied.<sup>37</sup>

18. Grzybowski<sup>38</sup> reviewed the isolated cases of reactivations of tuberculosis in children and concluded that mumps and pertussis were significant predisposing causes and worthy of prophylaxis.

#### **Studies Relative to the Recommendations on "Special Groups of Positive Reactors"**

1. Note that many patients in this category have been considered under the inactive tuberculosis category when active disease has never been recognized. Note also that 75-80% of all new cases of tuberculosis are known to come from persons who have known positive reactions

prior to the occurrence of active disease. The other 20-25% develop in persons who were previously tuberculin negative.<sup>18</sup>

2. Chiba et al<sup>39</sup> performed double blind testing on 548 recent tuberculin converters, treating 274 with isoniazid and 274 with placebo — all for one year. Over a 6-12 year follow-up period, nine cases of active TB developed in the treated group, while 23 developed in the control group. Performing a follow-up, large scale, similar program, he noted a breakdown rate of 0.24% per person-years in the treated group and 1.25% per person-years in the placebo group over a one to five year follow-up period.

3. In the USPHS isoniazid trial of household members to active cases, Ferebee and Mount<sup>1</sup> noted that of the 25,000 contacts examined, 479 had active TB (a rate of 19/1,000 contacts). The duration of active disease was not known but it seems likely that many of these patients were recent converters.

4. The foregoing statement is corroborated by the fact that Mount and Ferebee<sup>40</sup> in a similar study on contacts of inactive TB cases or active cases one year old revealed only ten active cases among 3,100 contacts or a rate of 3.5/1,000 contacts. Presumably, there were less recent converters in this group.

5. Gregg and Kuemmeres<sup>41</sup> in a North Carolina study of 102 close contacts found 29 active cases of tuberculosis and on a two year follow-up found 21 additional active cases. Of these last 21, 13 were from a group of 23 persons who converted their Mantoux tests between the two years. Of the 23 converters, the other ten who did not develop TB, had been started on INH.

6. In a series of articles Myers<sup>42, 43, 44</sup> found that of 149 children approximately aged 15 years, who converted their Mantoux reactions, that 11 (or 8.5%) had developed TB an average of four years after conversion. Of 195 children, aged 6-12, who were known converters, 11 (or 7.4%) had developed clinical TB in three months to seven years, and four (or 1.8%) had died. Myers estimated that the over-all rate of clinical disease occurring in a tuberculin converter over his lifetime is 5%.

7. Myers et al<sup>45</sup> followed up 750 children, ages one to six, with positive skin tests, of whom 151 had hilar or peripheral infiltrates of primary tuberculosis while 599 had normal chest X-rays. Of the 151 with X-ray abnormalities, seven died of progressive tuberculosis and another seven were successfully treated. Thus 9.2% of the children were affected. Of the 599 children with normal chest X-rays, 15 died of active



tuberculosis while 41 were or became clinically ill. Thus, 9.3% were affected. These figures show the significance of a positive tuberculin test in a child, despite the absence of X-ray abnormality.

8. The ages 6-9 or 12 have been called the tuberculosis safe years since the incidence of tuberculosis is low in this group.<sup>46</sup> However, in another study Myers et al<sup>43</sup> followed 1,127 persons in this age group and saw 2.5 deaths occur (that is, 2%). In a more extensive follow-up, Myers<sup>43</sup> had found that of 1,886 age 6-12 children who had positive Mantoux that 15 (0.8%) developed clinical disease before age 12 while 62 (3.3%) developed it after 12. In 1,127 children ages 13-17 with positive Mantoux reactions, Myers et al<sup>43</sup> found that 50 (4.45%) had tuberculosis at initial examination and that 88 (7.8%) subsequently developed clinical disease over the 2.5 year period of observation.

9. In their double blind study on children with primary tuberculosis, Mount and Ferebee<sup>47</sup> found in children ages 1-6 that the risk of developing extrapulmonary complications of tuberculosis could be reduced over ten-fold by prophylactic isoniazid, while further pulmonary complications were reduced nearly two-fold.

10. Steinfield and Cohen<sup>4</sup> on the basis of their studies felt that all adolescent children with positive tuberculin reactions should be given isoniazid because of their increased risks and susceptibilities. Myers<sup>42</sup> felt that the morbidity was not per se increased but represented increased exposure in this group with natural progression of a recently acquired or not-too-long acquired infection.

11. In a study in Poland on 389 students who were known to have converted their tuberculin reaction, Mysakowska<sup>49</sup> treated half with isoniazid and half with placebo. Over a 30 month period, 2.2% of the converters on placebo developed active tuberculosis, while none of the INH group did.

12. The British Medical Research Council has shown that for adolescents with positive tuberculin reactions, 4.8 times as much active TB occurred among those with Mantoux reactions over 14 millimeters induration as those under 15 millimeters.<sup>49</sup> Curry<sup>50</sup> in a study on 2,910 children on isoniazid prophylaxis and 1,192 children refusing prophylaxis found 1) that over 30 months the rate of new TB cases in the non-treated group was 20.9 cases/1,000 persons compared to 0.34 cases/1,000 persons in the control group and 2) that the rate of TB was 27 cases/

1,000 persons with Mantoux reactions over 14 mm compared to 11 cases/1,000 adolescents with reactions under 15 mm.

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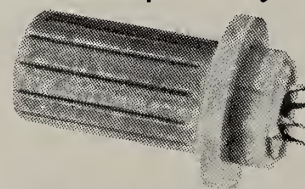
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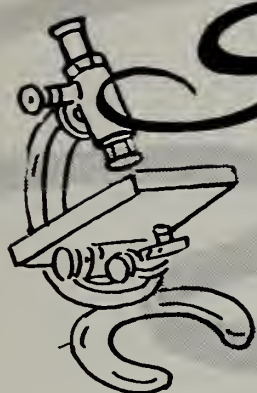


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# Scientific

# PAPER

## DIABETES INSIPIDUS

S. Sochocky, M.D.<sup>x</sup>  
Sioux Falls, S. Dak.

Diabetes insipidus is a disorder of water metabolism and is due to a deficiency of vasopressin. According to Van Peenen<sup>1</sup> it occurs in 1:10,000 hospitalized patients. This hormone is formed by supraoptic and paraventricular nuclei of the hypothalamus and is stored in posterior lobe of the pituitary body. The anti-diuretic hormone is necessary for reabsorption of water in distal tubule of nephrons. Destruction of the supraoptic and paraventricular nuclei or division of supraoptico-hypophyseal tract above the median eminence causes a permanent diabetes insipidus. If there is small damage to the hypothalamus diabetes insipidus may never recur after the initial polyuria and polydipsia.

Diabetes insipidus may be divided into two main groups, primary and secondary. Primary group comprises familial, idiopathic and nephrogenic diabetes insipidus. Familial diabetes insipidus may begin in infancy or childhood and affect either sex. Idiopathic diabetes insipidus may occur at any age, may affect either sex and constitutes the majority of all cases of diabetes insipidus. According to Coggins and Leaf<sup>2</sup> idiopathic diabetes insipidus constitutes forty per cent of all cases in Blotner's series. Idiopathic diabetes insipidus does not begin in infancy although may appear in early childhood. These forms of diabetes insipidus are due to vaso-

pressin deficiency which may be due to atrophy of hypothalamic neurons. Nephrogenic diabetes insipidus is due to failure of renal tubules to respond to anti-diuretic hormone; water does not absorb in normal amounts resulting in polyuria. Acquired nephrogenic diabetes insipidus developed after 19 days of therapy with demethylchlortetracycline hydrochloride in usual dosage, 150 milligrams four times daily, has been described by Castell et al.<sup>3</sup> The transient nephrogenic diabetes insipidus caused by drugs as decolomycin has been described by Torin.<sup>4</sup>

Secondary diabetes insipidus may be produced by several causes as a result of damage to hypothalamico-neurophyseal system. It may be caused by trauma to the head or neurosurgery. Transient diabetes insipidus usually begins within first four days after surgery and usually lasts 4 - 6 days on average. Neoplasms are common cause of diabetes insipidus. They may be primary as pituitary adenoma, craniopharyngioma, meningioma and others; or metastatic, as carcinoma from breast and lungs. According to Van Peenen<sup>1</sup> metastatic malignancies are responsible for twenty five per cent of all cases of diabetes insipidus and glioma for twenty per cent. It may also be caused by vascular disease, as infarcts. Infectious diseases as meningitis, encephalitis, abscess; granulomatous diseases as sarcoidosis, lymphoma as in leukemia, as described by Rosenzweig et al,<sup>5</sup> are the other causes of diabetes insipidus. In children lipid storage diseases as Hand - Schuller - Christian disease is not uncommon cause.

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### History of Case

Following a car accident, G. H., a 48 years old veteran was admitted into Orthopedic service of this hospital, for treatment, on February 17, 1968.

On admission he was unconscious, suffering from concussion and contusion, had a fractured skull and other compound fractures of long bones.

During hospitalization he developed polyuria and thirst; his urinary output steadily increased and reached 14,200 ccs. in 24 hours.

Examination revealed a well developed, confused man. Chest clear, heart sounds normal, no murmurs or thrills — blood pressure systolic 120 mm and diastolic 60.

Past history — he had never been seriously ill in his life, no history of kidney disease, diabetes mellitus, infectious, systemic or neoplastic diseases. Family history not contributory.

Laboratory data — urine — specific gravity 1001 - 1002, no albumin or sugar. Complete blood count, blood sugars, blood urea nitrogen, potassium, sodium, chlorides, calcium, phosphorus and alkaline phosphatase were within normal limits. X-ray of skull showed, "comminuted fracture extending over frontal region and facial bones with slight displacement of fragments; air was visible in anterior fossa." Chest X-ray negative.

Treatment and Course—he received injections of pitressin tannate in oil, 1cc. 10 International Units, every 24 hours. On May 13, 1968 injections were changed to posterior pituitary powder 40 milligrams intranasally by insufflation every 8 hours; later reduced to 12 hours, then every second and finally once every third day and stopped on September 22, 1968. Following this treatment thirst disappeared, urinary output decreased between 1800 - 2500 ccs. in 24 hours. Specific gravity of urine rose to 1009 and biochemistry remained within normal limits. He was discharged home symptom free on November 22, 1968.

**Diagnosis** — The appearance of symptoms polyuria, polydipsia and urine of low specific gravity may suggest diagnosis of diabetes insipidus. In primary diabetes insipidus physical examination is normal with perhaps signs of dehydration but in secondary diabetes insipidus physical signs as bitemporal hemianopsia, ocular palsies, papilledema, unilateral exophthalmus, as in Hand-Schuller-Christian disease may be present. Specific gravity of urine which is usually 1001 - 1008 and urine osmolality is below

the normal plasma level of 290 mOsm. per kg. of water. The daily urinary output is usually more than three liters in 24 hours in adults and one and a half liters in children. There are three main diseases which should be taken into account in differential diagnosis — compulsive polydipsia, diabetes mellitus and chronic renal failure. Various laboratory tests should help to differentiate these diseases from diabetes insipidus as dehydration test, hypertonic saline infusion and nicotine test and response to vasopressin. Intravenous infusion of hypertonic solution usually produces anti-diuresis in normal subjects but not in those with diabetes insipidus. Dies et al.<sup>6</sup> suggested in differential diagnosis between diabetes insipidus and compulsive polydipsia administration of vasopressin intravenously immediately after period of dehydration. If the pitressin produces a more concentrated urine than the dehydration, diabetes insipidus is present, if not, compulsive polydipsia is diagnosed. Also administration of 5 - 10 International Units of pitressin causes anti-diuresis and urine concentration.

In uncontrolled diabetes mellitus blood sugars and examination of urine will help. In chronic renal failure as in chronic nephritis, nephrosclerosis, cystic disease of kidneys there is polyuria, which rarely exceeds 3 liters in 24 hours. There is also a proteinuria, casts in urine and specific gravity is usually fixed about 1010. Hypercalcemia and hypokalemia may also cause polyuria and polydipsia. Hypercalcemia occurs as result of increased bone absorption, large ingestion or absorption of calcium, as in primary hyperthyroidism, sarcoidosis, vitamin A intoxication. Hypokalemia as occurs in starvation and excessive renal and gastrointestinal loss as in chronic diarrhea, primary aldosteronism, and excessive dosage of cortisone. In nephrogenic diabetes insipidus symptoms fail to respond to vasopressin.

All cases of diabetes insipidus should be studied for active intracranial lesions and diagnosis of idiopathic diabetes insipidus should be accepted only after all laboratory tests including biochemistry, spinal tap, bone marrow biopsy, X-ray of chest and skull are negative and after long period of observation. The appearance of diabetes insipidus may be the first sign of unsuspected primary disease as cancer of the lung. Raymond V. Randall et al.<sup>7</sup> described a case of patient with idiopathic diabetes insipidus which 10 years later was found to have Hand-Schuller-Christian disease.



**Treatment**—In treatment of diabetes insipidus the hormone therapy is superior to any other form of treatment. There are three preparations, soluble aqueous pitressin, a long acting pitressin tannate in oil, and dessicated posterior pituitary powder. The aqueous pitressin is short acting, variable in action, has been used in diagnostic purposes or in unconscious patients as in head injury. In uncomplicated diabetes insipidus pitressin tannate in oil has been used with success. Posterior pituitary powder may be used either by intranasal insufflation or by spray, the latter is preferable. Posterior pituitary powder may be used as compressed tablets and inserted between the gums and the cheek and should disintegrate slowly. Overdosage with vasopressin can produce hypertension, intestinal cramps and pallor. It also should be used with caution in patients with coronary heart disease.

Drugs as chlorothiazides, acetazolomine, mersalyl, dichlorphenamide were tried in treatment of diabetes insipidus. However, the side effects of prolonged treatment with these drugs, as potassium deficiency, blood dyscrasias, may prevent their use. Crawford et al.<sup>8</sup> treated 7 patients with diabetes insipidus, among them one patient with post traumatic, with chlorothiazides with satisfactory result. Chlorothiazides in dosage 500 milligrams twice daily can reduce urinary volume by 35 - 50 per cent in patients with moderate diabetes insipidus.

In nephrogenic diabetes insipidus an effective treatment is still lacking. A diet which supplies all requirements essential for good nutrition and growth giving the least possible solute residue for renal excretion, chlorothiazides may be used. Also in patients with refractory diabetes insipidus to vasopressin or in patients who could not tolerate it, chlorothiazides should be tried.

In secondary diabetes insipidus primary pathological process or disease causing diabetes insipidus should receive appropriate treatment.

#### Summary

1. A patient with diabetes insipidus secondary to head trauma was described.
2. Etiology, differential diagnosis and treatment were given.

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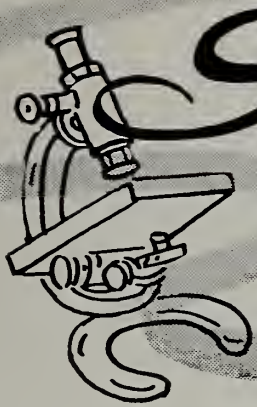
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# Scientific

# PAPER

## MYRINGOTOMY TRAINING DEVICE

Lothar Kaul, M.D.\*

It is commonly known that there is an increasing shortage of human and animal bodies at the disposal of medical schools to provide ample opportunity for practicing medical and surgical skills. Today medical students, pre and post-graduate, often have to rely on "over the shoulder observations" and some practicing of their skills on the living human beings under the supervision of experienced physicians.

To increase the opportunities of practicing on lifelike objects, in this case the human ears, the following device should prove to be of utmost value as a teaching aid, as well as a practicing device for aspiring specialists or any other interested medical personnel. This practical device, called MTD (myringotomy training device) can be used in medical institutions or in the privacy of one's study at home.

The following items as sketched on the opposite page represent a model of the human ear in original size on which a technical procedure, called a myringotomy, can be practiced over and over again.

This model can be put either on the table (equal to the operating table, patient lying) for practicing the proper use with an operating microscope, or it can be placed in an upright position for the use through an otoscope (patient sitting.)

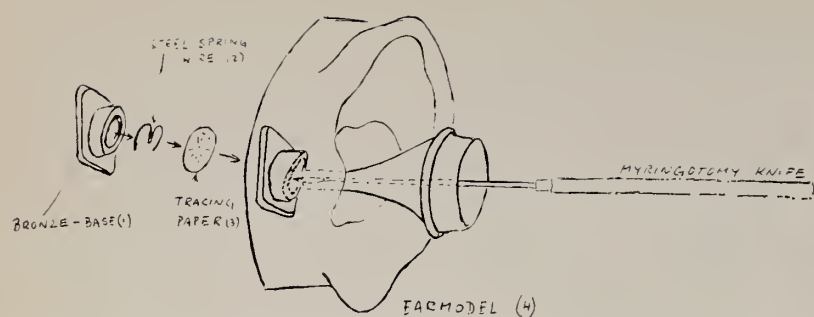
The model contains the intricate details and features of the human external and middle ear. The material from which the model is made is soft vinyl acrylic. This material imitates closely the consistency and flexibility of the normal ear.

The canal of the model has an average opening of about 5 mm. in diameter at the narrowest passage. The length of the canal is adjusted to the normal human ear, 2.5 cm. (one inch.)

On the bottom side, there is a small bronze or brass structure (1) imitating the confines and depth of the middle ear. This also contains in its upper portion a spring steel wire (2) showing the confines of the Shrapnell's membrane and the outlines of the hammer handle. The oblique location of the eardrum is designed and manufactured within the bronze structure. Thus, it is necessary to have a model for the left and the right side because of the mirror image of the

\* 2010 West 33rd Street  
Sioux Falls, South Dakota





ears. Tracing paper (3) is stretched over the middle ear space on top of the bronze die, having about the same strength as the human eardrum. The paper can be changed indefinitely by the owner until the procedure is learned to perfection, rather than being tried on the living human being.

Since the surgical procedure of a myringotomy is a very common necessity in the practice of medicine (surgical, ENT, family physician) and since it is performed many times daily in the USA and over the world, I feel that the device will add to the perfection of such surgery and thus help medical students and personnel, and ultimately benefit the patient.

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# ECONOMICS



## MEDICINE AND THE HEARING AID DEALERS

John G. Roland\*

Licensing of hearing aid dealers in South Dakota and other States has elicited a surprising amount of mis-information and contradictions.

The first attempt at legislation in South Dakota was the end result of several years of effort on the part of concerned hearing aid dealers. Attempts to coordinate the original bill with the medical profession proved fruitless, so a group of dealers drew and presented the original bill, knowing full well it would be defeated. Opponents of the legislation were drawn into the open and their objections were incorporated into new wording for the present bill. To set the record straight, the original law would have placed hearing aid dealers under the State Board of Health, but at the insistence of the opposing medical doctor a separate board was created. Because of our para-medical specialty, the board includes one doctor who specializes in the ear and its treatment and an audiologist with a Certificate of Clinical Competence. As this is a small state, the board was limited to five members. The law was enacted, the board created and the second group of applicants have been checked. Only time and history will prove its worth. Dealers here and in other states agree that legislation of this type is inevitable and necessary.

It is surprising to find the opponents still not convinced that the hearing aid dealers do want to improve their abilities. We are sure that the medical doctor would be mildly surprised at the general knowledge of the dealer in his profession and the hearing problems of those he serves, if he would take the time to actually investigate. Too much has been said about the terminology and restrictions on the dealer with very little actual investigation or information. To imply that a dealer "diagnoses" medical problems is an ambiguous statement. The average hearing aid dealer simply does not have medical training sufficient to "diagnose" medical problems, nor does he attempt this encroachment. It would also appear ambiguous to imply that he does not have sufficient knowledge to pursue his duties in the process of fitting a hearing aid. Most dealers have and do spend considerable time and money attending various trade and training meetings to refresh and improve their individual abilities.

The National Hearing Aid Society, much like any other national group, was formed with the express purpose of upgrading the hearing aid dealer's knowledge. With the help of the allied professions, educators and technicians, a home study course has been developed covering requirements for basic knowledge in our field. Completion of this course and full investigation as to business practices and community standing are required for Certification by the society's

\* Certified Hearing Aid Audiologist, President, South Dakota Hearing Aid Dealer's Association, Inc., Chairman, South Dakota Board of Hearing Aid Dispensers.



national board of examiners. National meetings are held each year drawing specialists from all fields for the enhancement of the attending dealers. Manufacturers offer their dealers additional training sessions each year, so a never ending process of continuing education is available.

Because of the immensity of the problem of discovering the hearing impaired, many dealers have worked closely with the school nurse and her programs of identification audiometry. School screening programs have been adopted in many areas of South Dakota, and, at little cost, could be placed in all school systems, available at all times for a regular school screening program and instantly available for any re-checking at a moment's notice. This program utilizes available personnel and does not require special mobile units and the time involved in routing the unit to the many outlying districts. The Minnesota pre-school program was demonstrated and adopted by South Dakota and a unit for a pilot study is in operation. However, because of lack of interest and the publicity needed, and perhaps lack of funds, the program is still in the planning stage for state-wide adoption. Information about proper screening methods, use and care of the audiometers and other related topics has been presented to the school nurse group by hearing aid dealers, who, because they are distributors for these items, must provide the necessary information. Programs for nurse training at the hospitals included the use and care of the audiometers, sample audiograms and types, care of the hearing aids and related items. This short program was, and hopefully will be continued, to enlighten hospital personnel to the many simple problems patients wearing hearing aids create. The allegation that the instructor was "diagnosing" medical problems at any of these meetings is pure fiction.

The hearing handicapped rely on the hearing aid dealer for his help and advice. For many years they have had little choice but the hearing aid consultant for their hearing problems. Granted, many new users were ill-advised, many were fitted to the wrong ear or with too much or too little amplification. However, thousands have regained their social and business contacts and peace of mind, through the use of the hearing aid. Poor after service and the few marginal dealers were and still are, held up as the example, which is misleading to the over-all result. In the twenty years of this


writer's experience, not one case of facial paralysis or destroyed hearing has resulted from the use of the hearing aid.

More complete and modern hearing test equipment is generally found in the hearing aid dealer's office. It is incorporated in our law that our equipment is subject to periodic calibration checks. Only a few scattered medical offices have equipment for complete hearing tests and sound chambers designed for the medical evaluation. At the present time, the most complete facilities for hearing evaluation are located at the South Dakota School for the Deaf. Full utilization of this facility offers the finest non-medical hearing evaluation in this area.

Because of the shortage of all categories working with and for the hearing handicapped, the hearing aid dealer has done a creditable service. With licensing requirements, expansion of education, and time, the hearing aid dealer of the future will of course be a far cry from the itinerant peddler that was the forerunner of this and other professions. Senate hearings, recently concluded, point up the importance of the hearing aid dealer in the total picture of service to the hard of hearing public. Cooperation between ours and the medical profession is taking place in other states but misleading and unfounded criticism has widened the chasm of understanding and close relationship so vitally necessary to the solution of problems in South Dakota. The hearing aid dealer is ready to serve and to fully cooperate in any capacity he can as this is his life and his livelihood.

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# CLINICOPATHOLOGICAL CONFERENCE

*From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Departments of Pathology of the Hospital and of the School of Medicine of the University of South Dakota*



D. K. OHRT, M.D.\*

*Senior Resident Pathologist: Editor*

JOSE MICHIELI, M.D.\*\*

*Pediatrician: Discussor*

## RESPIRATORY INFECTION, COMA AND DEATH IN A 2-YEAR OLD CHILD

### Case No. A68-153

This 2 year, 7 month old white female was seen as an office patient by her local physician. She presented with fever (104°F), excessive perspiration, and drowsiness of about 12 hours duration. She had been in good health until 3-4 days earlier when she developed an upper respiratory infection. An antibiotic was prescribed and the next day she was symptomatically improved. Her temperature had decreased to 101°F. Two days later, however, she began to regurgitate dark red blood. This was followed by a seizure of undetermined type.

She was admitted to her local hospital. Barbiturates were used to control subsequent seizures. On admission she reacted only to noxious stimuli. Within several hours, there was no reaction to any stimuli, and the pupils became fixed and dilated. There was no known ingestion of toxic agents. The other members of the family were in good health.

The laboratory work included: white blood count 14,000/mm,<sup>3</sup> with a differential count of 64% neutrophilic bands, 36% lymphocytes; fasting blood sugar 61 mg%, and BUN 15 mg%. The spinal fluid was clear with no cells present. The protein, sugar and chloride content was normal.

Because of clinical deterioration, she was referred to Sioux Valley Hospital. On physical examination, the respiratory rate was 50/minute, with noisy inspiration and quiet expiration. The apical pulse was 150/minute. The general examination was otherwise unremarkable.

On neurological examination, all muscles were described as flaccid. There was no response to painful stimuli. Both pupils were dilated with sluggish direct and consensual reaction to light. The eyes were in a "sunset position," and "Doll's head" movements were absent. Corneal and stretch reflexes were absent.

Laboratory studies included: Hgb. 14 gm%, white blood count 25,400/mm,<sup>3</sup> differential count 74% segmented neutrophils, 6% neutrophilic bands, 1% eosinophils, and 19% lymphocytes. CO<sub>2</sub> content 11 meq/L., pH 6.5, serum Na 148 meq/L., serum K. 3.6 meq/L., serum Cl 107 meq/L., blood salicylate level 16.5 mg%. Blood sugar 77 mg%, BUN 12 mg%. Urinalysis—color straw, specific gravity 1.034, protein 1+, ketone bodies — large amount, hgb. small amount, 2-4 white blood cells/hpf, 100-175 red blood cells/hpf, serum barbiturate — negative and serum phenothiazine — negative. Skull and chest films were negative.

Throughout her hospital course, the rectal temperature varied from 101.5°F. to 102°F. Treatment included large doses of antibiotics and fluid therapy to combat the acidosis. There was progressive deterioration of her condition, and she expired 10 hours after admission.

**Dr. Michieli:** I would like to start the discussion of this case by pointing out, (for the benefit of the medical students) that careful history taking is often more important than much of the data we may obtain by other means. The history in this case is good enough to assure arrival at an accurate diagnosis. It does lack, however, information regarding past history of the child which should include gestational data, birth weight, previous illnesses, development, and

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immunizations, as well as adequate family history. All are pertinent to the case.

To start with we have an individual whom we assume had been relatively well, but then develops a respiratory infection, which is rapidly complicated by high fever, vomiting of dark red blood and drowsiness. This is followed by a seizure. The patient then becomes comatose. We have depicted a fairly typical history and clinical picture of encephalitis with rapid progression to coma. This diagnostic possibility fits well with the initial physical examination, especially in the absence of meningeal irritation. The history of a preceding respiratory infection raises the possibility of direct cerebral infection, but there is no supporting evidence of this in examination of the cerebro-spinal fluid, where cellular response might be expected. It is of interest to note that we have no information regarding the appearance of the optic fundi prior to lumbar puncture. When the clinical picture strongly suggests increased intracranial pressure, this procedure is quite dangerous if proper precautions are not taken. Cerebrospinal fluid pressures were not recorded, which of course would have been of some help for the clinicians at that time. Besides the normal spinal fluid values, we have an elevated white blood count of  $14,000/\text{mm}^3$  with a differential count of 64% segmented neutrophils and 36% lymphocytes. The BUN was 15 mg%. The blood sugar was a rather low figure of 61 mg. %. If this determination was done by the Somogyi-Nelson technique, the figure is borderline low (normal 60-90). However, if it was done by the Folin-Wu technique (normal 70-100), we definitely have a hypoglycemic child, therefore, I would like to ask if there is any information available about the technique used.

**Dr. Ohrt:** Our laboratory uses an alkaline ferrocyanide method. Our normal range is 83-119 mg/100 ml.

**Dr. Michieli:** Certainly hypoglycemia, especially when prolonged, is a known cause of cerebral edema. However, this would explain part of the clinical picture in this case. I am not, however, particularly impressed by the 61 mg.% figure. It could represent mere depletion of the carbohydrates in a child who has been sick for some time, and has had inadequate caloric intake. With apparent clinical deterioration, the child was transferred to this hospital. Physical examination showed a febrile, comatose, hypotonic and tachypneic child with a tachycardia of 150/minute and signs of severely increased intracranial pressure, indicated by the sunset

position of the eyes. Dolls-head movements were intact, indicating that the 3rd, 4th & 6th nerves and the medial longitudinal fasciculus were still functioning. This finding along with the clinical picture suggests diffuse edema of the brain. Marked leukocytosis with shift to the left, a rather severe metabolic acidosis and an abnormal urinalysis which showed proteinuria, hematuria, and acetonuria were found. At this time, the blood sugar, BUN, and skull and chest x-rays were reported within normal limits. Ten hours after arrival, despite treatment, the child expired.

One should consider post infectious encephalopathy as another diagnostic possibility. This is predominantly a white matter disease and usually occurs somewhat later in the course of an infectious disease. It is ordinarily associated with some elevation in the CSF protein.

It is a well known fact that "toxic encephalopathy" is a disease of infancy, a feature which suggests that the unmyelinated brain is particularly vulnerable to the development of acute edema. However, a toxic encephalopathy by itself does not explain the entire clinical picture.

The absence of external evidence of bruising and localizing signs argue against the diagnosis of trauma, neoplasm or brain abscess. Infectious and arthropod-borne virus encephalitis are easily ruled out for many different reasons, among them the lack of pleocytosis in the cerebro-spinal fluid.

The sudden onset of vomiting followed by encephalitic manifestations in a child of this age should raise the question of exogenous or accidental ingestion of toxic agents such as lead, insecticides and thallium. It may be rather difficult to find these agents and to prove their presence even when they are searched for carefully.

Chronic lead poisoning certainly is a good possibility. Ninety percent of the cases occur between 5 and 36 months of age. However, there was no history of pica and lead lines were not found by physical examination.

There were no signs of anemia, basophilic stippling of the red cells, or long standing increased intracranial pressure, etc. Urinalysis findings such as the ones present in this case are common in lead poisoning; but in this case we do not have the presence of reducing substances which are common in lead poisoning. Acute lead poisoning is not likely in view of the cerebrospinal fluid findings. However, this entity should have been ruled out by obtaining urinary coproporphyrins. (This necessary procedure can



be done easily in any laboratory). Similarly, the lack of alopecia would exclude chronic thallium intoxication, which would otherwise fit into the picture quite well.

The history does not mention signs of wasting such as might occur with a metabolic or nutritional defect. The evolution of the disease itself rules out these entities.

There are many questions which evolve in relation to the urinary findings, as well as the metabolic acidosis in this case. Are we dealing with a child who has renal disease as the primary problem? Are the central nervous system symptoms developed on the basis of hypertensive encephalopathy? I wonder if the blood pressure was recorded at some time. It certainly would be of value to know more about the circulatory status.

Acute glomerulonephritis with hypertensive encephalopathy, although possible, is ruled out since there is no report of casts in the urine. There is no evidence of azotemia and we would not be able to explain the degree of metabolic acidosis as renal in origin since a BUN of 15 mg.% indicates acceptable renal function.

One may speculate then, on the possible etiologic role of metabolic and immunologic response to infection. I wonder if viral studies were obtained on this patient.

A peculiar, frequently fatal, syndrome thought somehow to be related to viral infection was reported in Australia in 1963 by Reye. Since its initial description in the *Lancet*, Reye's syndrome has been reported from South Africa, Czechoslovakia, Canada and the United States. To date there have been 84 cases reported with 70 deaths and a mortality of 83% . . . Reye's syndrome consists of a prodromal infection, followed in one to twenty-one days by sudden onset of vomiting, fever, convulsions and coma.

Affected children range from 6 months to 10 years of age. Most die within three days after onset of coma. A few recover dramatically within 24 to 48 hours. The etiology is unknown since viral or toxic agents have not been consistently identified. No satisfactory treatment is known.

The prodromal infection is usually trivial, involving the upper respiratory tract, or sometimes the gastrointestinal tract. This is followed by an apparent recovery until vomiting appears. Vomiting is progressive and blood is often present. Coma, stertorous, irregular breathing, fever, hypotonia and terminal convulsions rapidly follow. A few patients exhibit wild behavior before lapsing into coma. Some exhibit a charac-

teristic posture, lying with the elbows flexed, legs extended, and hands clenched. An occasional patient has had a non-specific erythematous rash, sometimes papular or vesicular, which becomes excoriated and encrusted. This may lead to an incorrect impression of varicella with encephalitis.

Most patients have neutrophilic leukocytosis, metabolic acidosis, acetonuria, hematuria and hypoglycemia. Typically, all attempts to raise the blood sugar, including use of hypertonic glucose are ineffective. Cerebrospinal fluid is clear, under normal pressure, and free from cells, with normal chloride and protein values. Cerebrospinal fluid sugar content is low in relation to the blood sugar value. This combination of blood sugar and cerebrospinal fluid findings should suggest Reye's syndrome in all children admitted with a diagnosis of encephalitis. Serum glutamic and pyruvic transaminases are usually elevated indicating liver involvement. The EEG is diffusely abnormal. Urinary amino acid chromatography demonstrates increased concentration of several amino acids.

The diagnosis can be substantiated by a liver biopsy. The hepatic tissue always exhibits massive fatty metamorphosis. Microscopic examination shows innumerable fat vacuoles in liver cells, but no displacement of the nuclei and no predilection for any specific zone.

The liver is of normal size or only slightly enlarged, and many observers describe it as normal in consistency. The brain in these patients may show cerebral edema, and sometimes anoxic neuronal changes, however, herniation never occurs. In children who recover, clinical improvement is paralleled by rapid restoration of normal laboratory parameters. Liver biopsy in improved patients shows normal histology and disappearance of the fatty changes.

Two recent reports of five patients with similar clinical and pathological features strongly suggest that Reye's syndrome is a relatively new entity but probably not rare. Though unknown, there are probably multiple etiologic agents. They result in a severe encephalopathy secondary to hepatorenal degeneration.

In the most recently reported cases, isopropyl alcohol and ECHO virus 11 were found. These investigations suggest both a viral and a toxic etiology. It is of interest to mention that no intracellular inclusion bodies or focal necrosis has been seen in the viscera.



Until more cases are accumulated and an etiological agent is described, this clinicopathological syndrome should be considered as a separate entity. Recognition of this syndrome during life will enable the clinician and the pathologist to carry out the toxicological and virological studies necessary to identify these etiologic agents.

I think that the diagnosis of toxic encephalopathy with fatty degeneration of the viscera, commonly called Reye's syndrome, fits well with this protocol. I have very little to add concerning treatment. I might have given serious consideration to the treatment of the central nervous system status by the use of hypertonic glucose solutions and steroids.

**Dr. Michieli's Diagnosis:** Toxic encephalopathy with fatty degeneration of the viscera (Reye's syndrome).

**\*Mr. Jeff Hagen:** How long can the patient withstand a pH of 6.5?

**Dr. Michieli:** Children are able to tolerate a much lower pH than adults.

**\*\*Dr. Richard Hosen:** Children can apparently survive for a considerable time. We see this frequently. I suspect factors other than pH are involved.

**\*\*\*Dr. Karl Wegner:** What is the renal component of the disease?

**Dr. Michieli:** Most have hematuria. Mild albuminuria as well as a few white blood cells may be seen. Casts have not been reported.

**Mr. Jeff Hagen:** How is it possible to have a small amount of hemoglobin and a large number of red cells in the urine?

**Dr. Ohrt:** Hemoglobin is detected only after red blood cells lyse. This occurs at a varying rate depending on the specific gravity of the urine. In this instance, the specific gravity was high, leaving the majority of the red cells intact.

**†Dr. William Rossing:** Are petechiae and skin hemorrhages present?

**Dr. Michieli:** They have never been reported.

**Dr. Rossing:** I would like to ask Dr. Chipman if the eyes in the sunset position or Doll's head movement have any specificity as far as localizing an intracranial lesion.

**‡Dr. Martin Chipman:** Doll's head movements are oculocephalic reflexes. In a normal adult this reflex is usually absent. To find it, one takes the patient's head and moves it very briskly from side to side. When positive, the eyes move toward the left when the head is moved toward the right. As I said, in the normal individual this is absent. When there is bilateral hemispheric damage or depression, all of the cortical influences on the brain stem are absent and the doll's head movements appear. They usually appear in unconscious individuals who have bilateral damage to the fronto-pontine radiation. It is a very useful type of exam in the unconscious patient. This should be accompanied by cold water caloric examination. This gives the clinician some clues as to whether there is involvement of the brain stem. When the head is placed at 30° in the upright position, one will find that the eyes will deviate toward the side of the cold water irrigation. In a normal person who is not unconscious, you will get nystagmus instead of tonic deviation. If the brain stem is destroyed you will not get anything. Both of these examinations would give you some help in evaluating the state of consciousness and helping to determine the bleeding site. The sunset sign is often found in young children who have increased intracranial pressure.

I do want to add one more thing. The examination of the unconscious patient is a very special type of neurological examination. The things that you should look for are the state of responsiveness to painful stimulation (did the patient withdraw? which side?), the presence or absence of stretch reflexes, the size and movement of the eyes and pupils, the presence or absence of doll's head movement, cold water caloric examination and observation of the respiration of the patient. All of these should be recorded. They can help localize the lesion and certainly give the physician some very useful information as to status.

**Dr. Michieli:** I would like to add that in the newborn, doll's head movements are normal. They do not signify the presence of any central nervous system pathology.

**Dr. Chipman:** Some authors have reported an elevated salicylate level. There has been argument in some circles concerning the role salicylates play in this disease. There are some people who feel they play a large role.

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**Dr. Michieli:** There is very little discussion in all these papers about salicylate level. Some other people have felt that barbiturates are also in some way related to the continued deterioration of the central nervous system. I have not found anything significant in regard to salicylate levels.

**Dr. Ohrt:** Authors of all recent articles feel salicylates are of no importance.

#### **PATHOLOGIC DISCUSSION:**

In 1963, Dr. Reye, a pathologist in Sidney, Australia, reported 21 cases of a new syndrome. It was described as a toxic encephalopathy with fatty degeneration of the viscera. The typical clinical course and laboratory findings have been very adequately discussed by Dr. Michieli.

A striking post-mortem finding in this case was the yellow, slightly enlarged liver with a blunt anterior edge. It weighed 450 grams. The cut surface was pale yellow with no mottling. The lobular architecture was unremarkable. Microscopically, there was diffuse microvesiculation of the hepatic cell cytoplasm (Fig. I). The nuclei were unremarkable. No areas of hepatic cell necrosis or inflammation could be identified. Frozen sections of liver stained with oil red O demonstrated extensive accumulation of fat positive material within the hepatic cell cytoplasm (Fig. II). This change has been described in all previous reports.

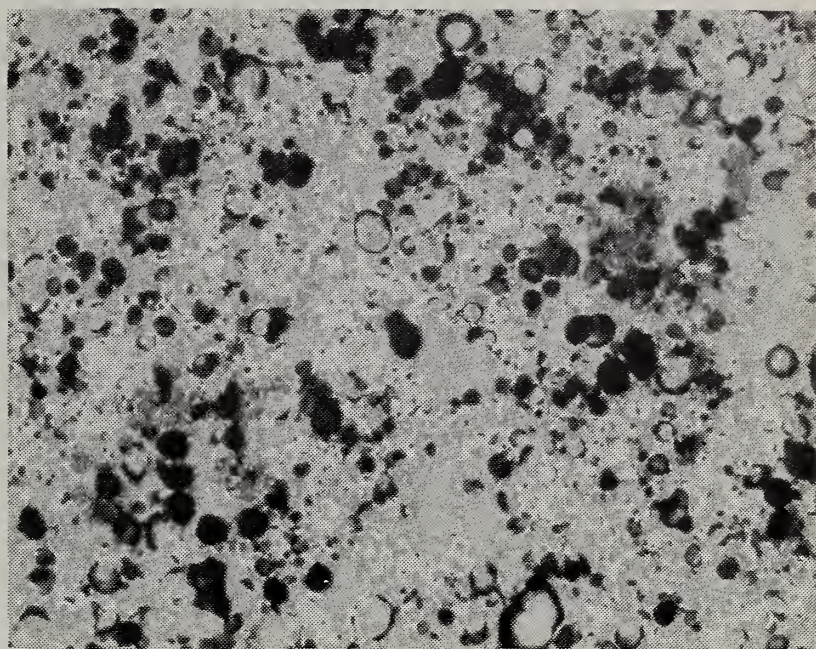
The brain weighed 1075 grams. The gyri were flattened. Mild coning of the cerebellar tonsils had occurred, but herniation was not present. The ventricles were small. Microscopical changes were minimal including perineuronal edema and focal early anoxic changes involving only the Purkinje cells of the cerebellum.

The kidneys and heart were grossly normal. A number of authors have described fatty vacuolation of renal tubular cells and cardiac muscle cells. These changes were not apparent either grossly or microscopically in this case. We did not do fat stains.

A small quantity of air escaped from the left hemithorax when the chest was opened under water. Tension pneumothorax is not an uncommon complication of vigorous resuscitative efforts. Pulmonary congestion and edema were apparent on gross and microscopical examination.

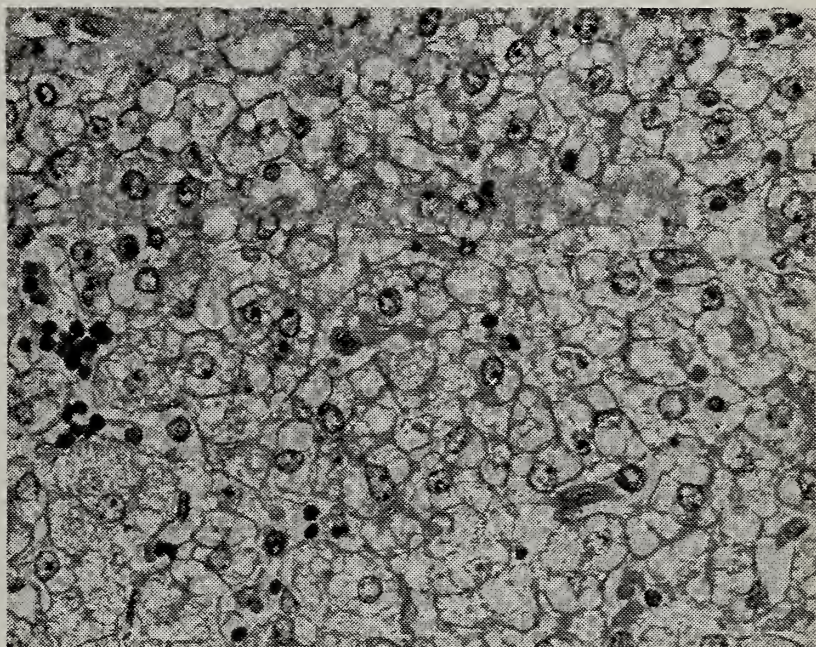
As Dr. Michieli has mentioned, the etiology of Reye's syndrome remains obscure. Several authors have reported multiple cases of varying severity within the same family. This certainly suggests a transmissible agent. A number of viruses have been isolated including Cox-

**Figure I**



High power view of liver. The cytoplasm of the cells contains numerous clear vacuoles. There is no inflammation or necrosis.

**Figure II**



High power view of liver. The dark areas represent lipid deposits in hepatic cells (Oil red O Stain).

sackie A-1 and B-4, Adenovirus, ECHO virus 11, Reovirus and Varicella. None have consistently been isolated and may represent incidental findings. Chang *et al* isolated a virus from a case of hepatitis which induced lipid accumulation in tissue culture cells. This virus apparently has never been isolated from a case of Reye's syndrome.

The metabolic components (Acidosis and Hypoglycemia) are poorly understood. Liver function studies are necessary for the clinician to make the correct diagnosis. The consistent absence of jaundice generally does not suggest hepatic dysfunction. Better methods of treatment and perhaps the mechanism of the disease will be determined as the clinician recognizes the clinical pathological entity early in its course.



## FINAL ANATOMICAL DIAGNOSES:

1. Toxic encephalopathy with fatty degeneration of the liver (Reye's syndrome).
2. Pulmonary congestion and edema (230 grams total).
3. Left tension pneumothorax.

**ADDENDUM:** Two more cases have recently been discovered. The first occurred in late February in Northwest Iowa. The patient was a 15 year old girl who expired after a typical clinical course. The diagnosis was made at autopsy. In late March, Dr. Michieli had the opportunity to attend a four year old boy who survived without apparent brain damage after intensive treatment. These cases will be the subject of a subsequent report.

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*Tybatran (tybamate) has been useful in the control of agitation in the aged and in the alleviation of some of the adverse emotional accompaniments of senility.*

*Tybatran (tybamate) has been used with benefit in the treatment of depressive symptoms associated with anxiety and other symptoms of psychoneuroses. However, it is not indicated for primary treatment of depressive states. It is not an antipsychotic agent, although it has been used as adjunctive therapy in some psychotic patients.*

*Dosage:* One 350 mg. capsule, 3 times daily and two at bedtime is suggested as the adult starting dose. Adjust to suit individual requirements. Daily doses above 3000 mg. are not recommended.

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*Precautions:* Avoid abrupt withdrawal after prolonged use, although withdrawal symptoms have not been reported to date. Exercise caution in addiction-prone individuals. If symptoms of hypersensitivity occur, discontinue at once and initiate appropriate symptomatic treatment. Avoid activities requiring optimal mental alertness if drowsiness or vertigo are present. As with any new drug, use cautiously in patients with history of drug allergies, blood dyscrasias, and hepatic or renal disease; periodic measurements of hepatic, hematopoietic and renal function should accompany prolonged and/or high doses.

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*Supply:* Tybatran (tybamate) is available in green, sealed capsules of three strengths: 350 mg., 250 mg., and 125 mg. Each strength is supplied in bottles of 100 and 500.

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## COUNCIL MEETING MINUTES

11:30 A.M. Sheraton-Cataract Motor Inn  
Saturday, April 26, 1969 Sioux Falls, South Dakota

The meeting was called to order at 11:30 a.m. by E. T. Lietzke, M.D., Chairman of the Council. Those present for roll call were Doctors John T. Elston, R. H. Quinn, J. A. Muggly, A. P. Reding, G. E. Tracy, John Stransky, W. R. Taylor, G. Robert Bartron, Bruce Lushbough, C. L. Swanson, E. T. Lietzke, Clark Johnson, C. E. Tesar, M. R. Cosand, H. E. Lowe, H. H. Brauer, J. B. Gregg, and R. R. Giebink. Guests in attendance were George Knabe, M.D., Paul Koren, M.D. and Mr. Jim Rosevear, AMA Public Relations Division.

Dr. Reding moved to dispense with the reading of the minutes of the last meeting inasmuch as they were published in the Journal. The motion was seconded by Dr. Elston and carried.

Dr. Giebink reviewed the report of the Commission on Communications. The executive office was directed to write to the AMA and request that they furnish additional copies of the AMA Journal and the AMA News to the Medical School in Vermillion. Dr. Quinn moved that the report as presented is excellent and should be implemented as much as possible. The motion was seconded by Dr. Cosand and carried. Dr. Tesar moved that the Council accept the report of the Commission on Communications. The motion was seconded by Dr. Muggly and carried.

## MEETING OF COMMISSION ON COMMUNICATIONS

10:00 A.M. 711 North Lake Avenue  
March 29, 1969 Sioux Falls, South Dakota

The meeting was called to order by R. R. Giebink, M.D., Chairman of the Commission on Communications. Those present were Drs. R. E. Van Demark, D. L. Scheller, and R. R. Giebink.

The commission members discussed the feasibility of having a State Fair booth at the 1969 Fair. Due to lack of interest and to the poor location of the booth, the commission recommended that the South Dakota State Medical Association not have a booth at the State Fair this year.

A discussion was held concerning high school Senior Day activities. The commission recommended that the executive office contact each member of the Commission on Communications and each district medical society and request that they contact local high schools and arrange for a display with a physician or intern in attendance or have a physician or intern show the film "Horizons Unlimited."

The commission briefly discussed the "Doctor Tell Me Program." The executive office was instructed to write the Minnesota State Medical Association and request permission to use their tapes, with credit given to Minnesota. If we cannot use the Minnesota tapes, the commission recommended that the program be dropped.

The commission reviewed the Explorer Scout Program and recommended that arrangements to start Explorer Scout Posts throughout South Dakota be delayed until the response from the Sioux Falls Explorer Scout Post can be determined.

Mr. Johnson reported on the booking dates for the film "Horizons Unlimited." Dr. Van Demark moved that the executive office contact each P.T.A. president throughout South Dakota, inform him that the film is available, and that he should contact his local physician to show the film to the P.T.A. and then show it to the high school students the following day. The motion was seconded by Dr. Scheller and carried.

Dr. Giebink recommended that the Association sponsor a Health Careers Day for Educators which would include counselors, health and science teachers and any others involved in guidance.

The commission also discussed Medical School Day which has been held in past years at the Medical School in Vermillion. The commission recommended that if the Medical School holds a Medical School Day, the Association should provide publicity for the program and transportation for interested high school and college students.



The commission considered ways of assisting medical students in Vermillion. The commission recommended that the Association provide AMA journals to senior students at the Medical School. It was also recommended that the district medical societies recognize and invite the medical students to society meetings.

It was suggested that meetings be held in Pierre and that the commission meetings be held on one day and the Council meeting on the following day.

The meeting was adjourned at 11:45 A.M.

Mr. Erickson briefly reported on the activities of the Commission on Liaison with Allied Organizations. Dr. Cosand moved that the Council accept the report of the Commission on Liaison with Allied Organizations. The motion was seconded by Dr. Bartron and carried. Dr. Tesar moved that the Council of the State Medical Association accept the guidelines of the joint statement on the role of the registered nurse in acute cardiac care as set forth. The motion was seconded by Dr. Tracy and carried.

#### MEETING OF COMMISSION ON LIAISON WITH ALLIED ORGANIZATIONS

Saturday, March 22, 1969 711 North Lake Avenue  
10:00 A.M. Sioux Falls, South Dakota

The meeting was called to order by David Buchanan, M.D., Chairman of the Commission on Liaison with Allied Organizations at 10:00 a.m. Those present were Drs. D. J. Buchanan, A. J. Tieszen, V. V. Volin and Mary Sanders.

Dr. Buchanan reviewed the minutes of the last meeting of the commission for the members' information.

Dr. Buchanan reported on plans made for the Medical-Legal Program during the coming year. He stated that H. Phil Gross, M.D. and Richard Leander, M.D. will represent the State Medical Association on the planning committee.

Dr. Buchanan reported on the meeting with nursing groups on proposals regarding nurses and intensive care set-ups in hospitals. He submitted the attached, proposed joint statement on the role of the registered nurse in acute cardiac care. Dr. Tieszen recommended that PHS Publication No. 1764, as referred to in No. 1 of the proposed statement, be studied by a commission member to determine what specific instructions must be taught before the commission recommends the statement to the Council for consideration. Dr. Buchanan stated that he would study PHS Publication No. 1764 and report to the commission at its next meeting.

Dr. Sanders discussed the AMA Medicine-Religion meeting which she attended. Dr. Sanders stated that the AMA has material and speakers available to assist the various districts in planning a Medical-Religion meeting. Dr. Volin suggested that the commission have a display at the 1970 annual meeting promoting pamphlets and other information provided by the AMA concerning medical-religion problems. The commission also recommended to the Commission on Scientific Medicine that a speaker on medical-religion problems be obtained for the 1970 general session at the annual meeting and that a noon luncheon panel discussion be held following this session to which local religious leaders should be invited.

The commission members discussed the proposed statement of principles regarding alcoholism which was approved by the Board of Trustees of the American Medical Association. Dr. Volin moved that the commission recommend that the Association subscribe to the principles of this paper, but a permissive attitude toward the alcoholic does not solve all of his problems. The motion was seconded and carried.

The commission discussed a request from the Greater Sioux Falls Safety Council for a list of physicians in the Sioux Falls area to whom they may send meeting agendas. The commission felt that the agenda for the April 16, 1969, meeting would be of interest to physicians in the area and a mailing list should be provided to the Council.

The commission reviewed attendance of commission members at past meetings. Dr. Tieszen requested that the executive office survey the questionnaires sent to physicians throughout the state asking if they would list the commissions to which they would accept appointment. The commission would like to know the total number of questionnaires returned and the number indicating a preference for the Commission on Liaison with Allied Organizations.

The meeting adjourned at 12:00 noon.

#### PROPOSED JOINT STATEMENT ON THE ROLE OF THE REGISTERED NURSE IN ACUTE CARDIAC CARE

It has been demonstrated that a significant reduction in mortality from acute myocardial infarction can be achieved by establishing specialized coronary care units within those hospitals which have the capabilities, equipment and trained personnel to provide such care.

It is recognized that intensive observation, and immediate recognition of the patient's needs are essential. Institution of appropriate life-saving therapy must be done within an extremely short space of time.

With the intent of promoting good patient care and protecting the Doctor, the Nurse, and the Hospital, the South Dakota Medical Association, the South Dakota Nurses' Association, and the South Dakota Hospital Association recognize that the following fall within the definition of professional nursing and that Registered Nurses may properly use monitoring, defibrillation equipment and resuscitative equipment, and institute immediate life-saving corrective measures including the direct introduction of medications into fluid or any part of the equipment when used in the administration of the intravenous fluid, or administer medication by venipuncture, if a licensed physician is not immediately available to do so, or if the licensed physician directs the Registered Nurse to do so, and all the following conditions exist:

1. The registered nurse has had special competent instruction as outlined in the PHS Publication No. 1764 (March 1968) and
2. The registered nurse performs the authorized procedures upon:
  - (a) the direct order of a licensed doctor of medicine, or
  - (b) pursuant to standing procedures established as set forth in item 3.
3. Where a hospital has determined that a registered nurse may perform the techniques, then the techniques to be performed within the framework of designated preparation and practice of the nurse shall be established for the hospital by a committee composed of representatives from the medical staff, the department of nursing, and the administration. This committee shall delineate the types of fluids, and designate the medications that nurses may put into fluid or any part of the equipment when used in the administration of the intravenous fluid or may administer by venipuncture. Each hospital must have these policies in writing.
4. Such criteria shall make provision that in case of a cardiac emergency, a licensed physician and other designated categories of personnel are to be immediately summoned to assist the registered nurse who is carrying out the physician's orders, or is carrying out standing procedures established by the medical staff of the hospital, and contained in the adopted criteria.

It is recommended that a nurse not so trained is legally obligated to refuse to do such procedures.

The Commission on Internal Affairs' report was reviewed by Mr. Erickson. Dr. Tracy moved that the Council submit a resolution to the House of Delegates encouraging a \$25 annual dues increase. The motion was seconded by Dr. Taylor and carried. Dr. Johnson moved that the Council accept the report of the Commission on Internal Affairs. The motion was seconded by Dr. Brauer and carried.



## MEETING OF COMMISSION ON INTERNAL AFFAIRS

March 22, 1969  
1:30 p.m.

711 North Lake Avenue  
Sioux Falls, South Dakota

The meeting was called to order at 1:30 p.m. by Chairman B. J. Begley, M.D. Present were Drs. Begley, C. Rodney Stoltz, B. T. Lenz, Bruce Allen, and C. S. Roberts.

The first item on the agenda was consideration of a dues increase for the members of the South Dakota State Medical Association. Dr. Stoltz moved that the Commission recommend to the Council that a \$25 annual dues increase be proposed to the House of Delegates at the 1969 annual meeting. The motion was seconded by Dr. Allen and carried.

Dr. Stoltz gave the report of the joint Association and Auxiliary committee on the Benevolent Fund. (report attached). Dr. Stoltz indicated that the joint committee felt that the loan fund should be operated on a revolving fund basis and that no further contributions from the two associations would be required at this time. Dr. Stoltz moved that the recommendation on the Benevolent Loan Fund be made to the Council for their approval. The motion was seconded by Dr. Lenz and carried.

The Commission discussed the advisability of changing the Bylaws to combine the Commissions on Communications and Liaison with Allied Organizations. Dr. Stoltz moved that for the time being, the Commission recommend to the Council that no By-law change be proposed in regard to the Commission on Communications and Commission on Liaison with Allied Organizations, but that efforts be made to hold joint Commission meetings. The motion was seconded by Dr. Allen and carried.

The meeting adjourned at 2:15 p.m.

The meeting of the committee of the South Dakota State Medical Association Commission on Internal Affairs and the committee of the Women's Auxiliary to the South Dakota State Medical Association was held in Madison on Saturday, January 11. Members present were Mrs. H. Wold and Dr. C. R. Stoltz. It was decided that a loan program for students in the para-medical fields be recommended.

The suggested lines of development are as follows:

1. The applicants should qualify scholastically by:
  - a. Graduating in the upper ½ of their high school class.
  - b. Carrying a 2.0 average in college work.
2. Need for financial aid would be determined after consideration of resources available (see attached sheet A).
3. Interest of 6 percent shall be paid on unpaid balance of loans (see No. 5).
4. A note shall be required for the amount of the loan, requiring co-signers if the applicant is under 21 years of age (see attached sheet B).
5. Repayment shall begin six months after graduation.
6. The limit of the loan will be \$500 per year, except in special circumstances to be reviewed by a committee of the S.D.S.M.A. and W.A.-S.D.S.M.A.

Dr. Gregg reported on the activities of the Commission on Legislation and Governmental Relations. Mr. Erickson stated that a request has been sent to Dr. Dean asking for a copy of the report of the Blue Ribbon Committee to study the Health Department for the Association's information. Dr. Swanson moved that the Council accept the report of the Commission on Legislation and Governmental Relations. The motion was seconded by Dr. Reding and carried.

## MEETING OF COMMISSION ON LEGISLATION AND GOVERNMENTAL RELATIONS

1:30 P.M.

March 29, 1969

711 North Lake Avenue  
Sioux Falls, South Dakota

The meeting was called to order by Dr. Gregg, Chairman of the Commission. Members present were Doctors R. G. Gere, R. J. Foley, R. H. Hayes, Howard

Wold and J. B. Gregg. Guests in attendance were Martin Chipman, M.D., James Felker, M.D., Mr. Earl Bihlmeyer, Mr. Richard Erickson and Mr. Bob Johnson.

1. Resolution concerning separation of South Dakota and Nebraska in the Regional Medical Planning Program. The matter was discussed by the consultants, Dr. Chipman, Dr. Felker and Mr. Bihlmeyer, and by the Commission. Dr. Wold moved that the Commission recommend to the South Dakota State Medical Association that the relationship between this state and Nebraska in the Regional Medical Program be dissolved. The motion was seconded by Dr. Gere. Vote: for, 4; against 0; abstain, Dr. Hayes.

2. Mr. Richard Erickson reported regarding the events which occurred at the recent session of the South Dakota Legislature and the fate of the various bills which were of interest to the South Dakota State Medical Association. A copy of the Grab Bag containing the results of the legislative session has already been mailed to each physician in South Dakota.

3. Dr. Hayes reported regarding his investigation of the South Dakota State Health Department and its director. As of this moment there are several different committees representing the state of South Dakota and the South Dakota State Medical Association, all investigating or interested in the function of the State Health Department, its function, possible reorganization, and possible successors as its director. Inasmuch as definitive information is not forthcoming at the present, and there is considerable overlap in the scope and function of this Commission and the various committees, no definite report can be made. It is the hope of this Commission that it and the South Dakota State Medical Association can be kept informed of the findings, opinions, and recommendations of the special Blue Ribbon Committee appointed by Governor Farrar and chaired by Dr. Roscoe Dean, to study the South Dakota State Health Department.

4. It was announced to the Commission that there had been called a meeting at Pierre on February 24, 1969, by the South Dakota State Department of Public Welfare to discuss a cut in fees of about 10 percent across the board by the physicians, hospitals and nursing homes, in the care of welfare patients. Because of the vigorous protest upon the part of representatives of the organizations involved, the meeting was cancelled and funds were found elsewhere. However, the South Dakota State Medical Association should take due note of this happening and prepare for possible other similar problems in the future.

5. It was announced that there may be introduced into the next session of the South Dakota Legislature a bill to increase the fee for physicians who serve on the sanity board hearings.

The meeting was adjourned at 4:00 P.M.

Dr. Lushbough reviewed the report of the Commission on Scientific Medicine. Dr. Taylor moved that the Council accept the report of the Commission on Scientific Medicine. The motion was seconded by Dr. Cosand and carried.

## MEETING OF COMMISSION ON SCIENTIFIC MEDICINE

10:00 A.M.

March 22, 1969

711 North Lake Avenue  
Sioux Falls, South Dakota

The meeting was called to order by Chairman Bruce Lushbough, M.D. Present for roll call were Drs. Lushbough, H. Phil Gross, R. B. Leander, John Tidd, David Studenberg, Noel deDianous, and Karl Wegner.

A discussion was held on the situation at Plankinton in regard to medical care at the State Training School. The commission suggested that a letter be sent to the Board of Charities and Corrections to get background information. The commission would like to know the number of children at the school, future plans for the school, and the situation in regard to medical care at the present time. The letter should



also express the concern of the State Medical Association for the medical care provided at this institution and offer to be of assistance to the school, if requested.

The commission discussed the subject of transplants and the statement of the American Medical Association concerning the moral and ethical aspects of transplantations. The commission expressed its concern with this subject but did not feel it was necessary to take any action at the present time.

The commission reviewed the scientific program for the 1969 annual meeting. The format of the Monday afternoon workshops was discussed. The commission asked that a general mailing be made to all South Dakota physicians soliciting case reports to be discussed at the various workshops. A deadline of May 1, was established for receipt of the case reports at the executive office.

A discussion was held on the suggested split-session for the 1970 or 1971 annual meeting. Dr. Wegner expressed concern that the medical students in the preceptor program would not be able to attend the meetings held in the late summer.

Dr. Leander reported on the mental health meeting he recently attended in Chicago.

A discussion was held on the future of the medical school at the University and the physicians in attendance expressed their concern and interest in this subject.

Dr. Lushbough announced a meeting on Alcoholism at Yankton State Hospital to be held tentatively June 26.

The meeting adjourned at 11:45 A.M.

Dr. Tracy reported on the activities of the Commission on Medical Service. The committee appointed to study the Crippled Children's Program submitted recommendations for the Council's consideration.

#### **RECOMMENDATIONS SUBMITTED BY THE COMMITTEE FORMED FOR STUDY OF THE CRIPPLED CHILDREN'S PROGRAM OF SOUTH DAKOTA**

Respectfully submitted,  
H. P. Gross, M.D., Chairman  
John Gregg, M.D.  
Willis Stanage, M.D.  
Robert E. Van Demark, M.D.

I. Lobbyists representing the American Medical Association of South Dakota should give added emphasis to procurement of additional state funds to the Crippled Children's Program. This effort would be further rewarded by additional matching funds from Federal Services.

#### **II. CRIPPLED CHILDREN'S CLINICS**

A. All children seen in the clinics should have a referral by their family doctors. This would be interpreted as a screening exam, and thereby it would be recommended that each child be seen only by specialties within whose province their problems lie, and the exam of each child by a pediatrician be eliminated.

B. Records of the clinics should be uniform, and be available on a year to year basis. A copy of the records should follow the patient to his family doctor, or any other doctor seen later in consultation.

C. Site of the clinic should be established at a medical facility (hospital or clinic) if at all possible, where laboratory and x-ray facilities would be available.

D. The official consultant at the clinic should come from the farthest possible distance, so as to avoid seeing his own patients, and thereby give more impartial advice. All local physicians in the area are encouraged to be a part of the clinic team and act as coordinators.

E. Once the diagnosis is made, the clinic team must refer the patient back to the family doctor. It is then his responsibility for further care, or referral. If referral is necessary, it is recommended this be done within the state of South Dakota.

III. It is recommended that all children with ear disease and hearing problems requiring treatment be included in the Crippled Children's Program.

IV. **Recommended for Study** — The plan of health care with hospital based nurses, rather than state based! This plan assumes the local hospital to be the supplier of medical care. The nurses are responsible to the facility, rather than to the state, for providing nursing care, case finding, and other duties which they presently provide.

V. It is recommended that the application for Surgical and Hospital Care be amended. The second paragraph under Agreement of Parents or Guardian should be deleted. We have obtained legal counsel, and find that the paragraph has no legal bond. It is also frightening to many parents to sign such a blanket statement.

Dr. Stransky moved that the Council accept the report of the Commission on Medical Service. The motion was seconded by Dr. Tesar and carried.

#### **MEETING OF COMMISSION ON MEDICAL SERVICE**

10:00 A.M.  
March 29, 1969

711 North Lake Avenue  
Sioux Falls, South Dakota

The meeting was called to order at 10:00 a.m. by Chairman, Dr. G. E. Tracy. Present for roll call were Drs. Tracy, W. B. Odland, Bernard C. Gerber, William R. Taylor, T. H. Willcockson, and L. H. Amundson. Also attending the meeting were members of the Admissions Committee of the University of South Dakota Medical School. Dr. J. A. Muggly attended the meeting as a representative of the South Dakota Medical School Endowment Association.

Dr. Spencer of the Medical School faculty, discussed the admissions policy now being followed at the Medical School. He indicated that it would be helpful if letters of recommendations from physicians would include information on the applicant's emotional stability, intellectual achievements, acceptance of responsibility and motivation. He stated that the Admissions Committee interviews between 90 and 100 applicants each year, for at least a half-hour interview. Dr. Gausch of the Medical School staff showed slides on the statistics gathered on each applicant and how these statistics are utilized by the Admissions Committee.

Dr. Tracy read two letters from South Dakota physicians objecting to the current admission policy at the school.

Dr. Rinker stated that before any non-resident applicant is considered for admission, all South Dakota residents have been considered and admitted, if qualified. South Dakota residents have been accepted with less than acceptable qualifications. The Admissions Committee indicated that high-risk South Dakota students are being given every chance and about 50 percent of these are completing the course. It is felt that these less than fully qualified students account for the attrition rate. These high-risk students are rarely accepted at their school of first choice for the final two years of medical school. The importance of the MCAT scores was emphasized as these scores are utilized again when the student applies for transfer. The Admissions Committee also emphasized the importance of motivation in achieving success at medical school. The average student, with proper motivation, can successfully complete medical school. At the present time, three practicing physicians serve on the Admissions Committee, T. H. Sattler, M.D., Karl Wegner, M.D., and Dr. Pugh of Sioux City.

Dr. Spencer started that they anticipate more South Dakota students in the 1969 freshman class, than were in the 1968 class. However, it was pointed out that many South Dakota students do not even apply at the South Dakota two-year medical school. Also many who do apply and are accepted, withdraw when they are accepted at other schools. The South Dakota school loses some of its best qualified applicants in this manner.

The Admissions Committee suggested that when a physician has a personal interest in an applicant, he contact the medical school to discover the problem, if the applicant is rejected. This would solve many



problems from developing. Also, objectivity on the part of the doctors, when a family situation is involved, should be stressed.

The Commission requested that the doctors of the state be kept informed of the number of South Dakota students who are accepted each year and also the number of South Dakota students who are accepted and then withdraw before school starts. At the present time, thirty students have been accepted for 1969 entering class and twenty six are South Dakota students.

After hearing the presentation of the Admissions Committee, it was the impression of the Commission members that South Dakota students are adequately being given preferential treatment by the Admissions Committee of the South Dakota Medical School.

The Admissions Committee then discussed the policy of admitting students with three years of undergraduate work. Dr. Spencer stated that they recommend completion of four years for everyone. Every girl who has been admitted with three years of college has failed to finish the course. However, if a student has completed all the requirements and has good MCAT scores, plus a high grade point average, he can be accepted at that point. No stigma is attached to being asked to complete the fourth year. At the present time, four juniors have been accepted for the fall freshman class. Three juniors are in the present freshman class. Eight applicants were requested to complete their senior year last year. Three of these have re-applied for the 1969 class and two have changed their major. Maturity is a major factor in considering junior year applicants.

The question was raised if it was the practice to discourage students from applying at the end of their third year in college. The Committee answered that the application is not discouraged — anyone may apply — but it does depend a great deal on the individual whether or not he is accepted at that point. A junior student must have a superior record and, again, maturity. The Committee indicated that those students who are of an acceptable character at the end of three years of college will be given equal consideration with those who have a degree when they apply at the Medical School.

The Commission then raised the question of grading at the Medical School and asked if one or two courses were failing many students and thus causing the high attrition rate. The Admissions Committee indicated that changes in the courses would be of value, but not enough money has been appropriated to bring about innovations in the curriculum. In spite of the money shortage, some changes will be made next fall. The Committee stated that eight of the twelve losses last year were due to lack of motivation, rather than grade problems. The Admissions Committee stated that there have been some problems in some individual courses and that they are aware of these problems. Renovations are underway and the needs of the students are being considered.

Dr. Tracy asked the Committee if a single course failure, particularly in a sophomore year, eliminates a student from medical school. Dr. Knabe indicated that the grading system is under review at the present time. He stated that the clinical faculty members are consulted on borderline failure cases. Dr. Reid stated that the school tries to be as flexible as possible in these borderline cases. However, grades are established in each course, not on the over-all average of the student. Students may petition for reconsideration if they receive two "D" grades. Dr. Rinker indicated that more counseling is being recommended for the students at the first sign of trouble. The Admissions Committee stated that the course of study at the Medical School is difficult, but could be made more interesting and stimulating. A larger school has more faculty members and the opportunity for a variety of approaches to teaching.

Dr. Tracy summarized the conclusions of the Commission as follows:

1. The Commission would like to have someone from the Commission serve on the Admissions Committee.

2. That the present preceptor program might be starting too late for full advantage to the medical student. He suggested that each incoming freshman be assigned a preceptor at the time he is admitted to medical school; that the same physician keep in contact with and encourage the student during his entire medical education.
3. That the physicians in the state could assist the Admissions Committee in some manner to evaluate motivation in medical school applicants. There is no established test for this trait.

After a luncheon break, the Commission reconvened at 2:00 p.m.

Mr. Mac Hobbs of the Harold Diers Company and Mr. Don Killen appeared before the Commission to discuss an extended liability program which they propose for endorsement by the South Dakota Medical Association.

Dr. Willcockson moved that the extended liability program be referred back to the Council without recommendation. The motion was seconded by Dr. Gerber and carried.

Dr. Willcockson moved that the Commission on Medical Service recommend to the Council that Association policy be established to state that the Association, in the future, not endorse any insurance proposal, unless it offers something to the physicians that cannot be obtained on any other basis. The motion was seconded by Dr. Taylor and carried.

In view of the preceding recommendation, the Commission took no action on the proposal submitted by the PRO Fund, Inc., for endorsement by the State Medical Association.

Dr. Richard Belatti of Madison gave his report on the Rural Health Conference he attended in Philadelphia. Dr. Willcockson moved that the report be printed in the SOUTH DAKOTA JOURNAL OF MEDICINE, for the information of the entire membership. The motion was seconded by Dr. Gerber and carried.

Dr. Gerber reported on the farm accident reporting form and stated it will be distributed to physicians and hospitals in the near future.

Dr. Taylor moved that the following scholarships and awards at the University of South Dakota Medical School be approved and increased, if possible.

1. \$100 scholarship to freshman student from South Dakota
2. \$100 scholarship to sophomore student from South Dakota
3. \$450 tuition scholarship to incoming freshman from South Dakota
4. \$100 travel allowance to SAMA delegate to national convention.

The motion was seconded by Dr. Willcockson and carried.

Dr. Tracy reported on the meeting he attended on hospital accreditation standards in Chicago. He stated that the standards will be drastically revised in the near future. However, a final draft has not been prepared as yet.

The pre-school vision and hearing testing program was discussed. No action taken.

The committee appointed to study the Crippled Children's Program has had four productive meetings, but they have not completed a final report as yet. This will be considered at a future Commission meeting.

The Commission discussed activities of the South Dakota Medical School Endowment Association. Dr. Willcockson moved that the Commission recommend that the Council of the South Dakota State Medical Association endorse the formation of a "Dean's Club" to support the medical school at Vermillion, and that the Council present this matter to the House of Delegates for endorsement at the annual meeting; that the Council express its appreciation to Dr. E. H. Peters for his work in this regard. The motion was seconded by Dr. Gerber and carried.

Dr. Willcockson moved that the Commission recommend to the Council that a program be implemented to appoint a year-round preceptor for each incoming medical student, utilizing physicians in South Dakota



who are interested and would be willing to counsel medical students during their two years at the medical school in Vermillion. The motion was seconded by Dr. Odland and carried.

Dr. Gerber moved that the Commission recommend to the Council that the Chairman of the Commission on Medical Service, or his designee, be either an active or ex-officio member of the Admissions Committee at the Medical School in Vermillion. The motion was seconded by Dr. Odland and carried. The commission further recommended that this physician report at each meeting of the Commission on his activities in this regard.

The Commission further recommended that practicing physicians be actively involved in evaluation of applicants at the Medical School. These physicians could assist the academic faculty in establishing motivation and maturity of applicants.

The meeting adjourned at 4:00 p.m.

Mr. Jim Rosevear appeared before the Council to explain the re-organization in the AMA Department of Public Relations and to ask the physicians for their continued support.

Mr. Ben Hins appeared before the Council to answer questions concerning methods of determining eligible recipients under the Department of Vocational Rehabilitation program.

Dr. Paul Koren, Director of the Medical Assistance Unit for the Department of Welfare, listed the specifications for a proposed insurance program which would cover the ADC recipients in South Dakota for the Council's information. Dr. Bartron moved that the Council adopt in principle the guidelines set forth by Dr. Koren for the Title 19 Program and forward the guidelines to the Corporate Body of Blue Shield. The motion was seconded by Dr. Tesar and carried.

Dr. Knabe outlined the budget for the Medical School for the coming year. Dr. Quinn suggested that the Council consider setting up a subcommittee to study the Medical School and its problems.

At this time Y. H. Charbonneau, M.D. requested an appearance before the Council. Dr. Quinn moved that the Council amend its schedule to permit Dr. Charbonneau's appearance. The motion was seconded by Dr. Tracy and carried. Dr. Cosand moved that the Council meet in executive session and allow Dr. Charbonneau fifteen minutes for his presentation. The motion was seconded by Dr. Quinn and carried. Following Dr. Charbonneau's appearance Dr. Elston appointed a committee consisting of Dr. Cosand, Chairman, Dr. Stransky and Dr. Johnson, to consider Dr. Charbonneau's statements regarding the executive secretary. The committee will meet in Sioux Falls at the Holiday Inn on Wednesday, May 14, at 1:30 p.m. to hear Dr. Charbonneau and Mr. Erickson, and will report to the Council at its next meeting.

Mr. Erickson reviewed the letter received from the AMA Board of Trustees concerning the termination of Dr. Blasingame as Executive Vice President. Dr. Muggly moved that the Council accept the letter as a report from the Board of Trustees. The motion was seconded by Dr. Lushbough and carried.

Nominations were opened for the position of Editor of the SOUTH DAKOTA JOURNAL OF MEDICINE. Dr. Lushbough moved that the Council unanimously reappoint R. E. Van Demark, M.D. as Editor of the SOUTH DAKOTA JOURNAL OF MEDICINE. The motion was seconded by Dr. Johnson and carried.

Nominations were in order for three names to be recommended to the Governor for appointment to the South Dakota State Board of Medical and Osteopathic Examiners to fill the position held by G. Robert Bartron, M.D. whose term expires July 1, 1969. Dr. Muggly moved that Dr. Bartron's name be submitted as first choice. The motion was seconded by Dr. Reding and carried. Dr. Elston moved that Dr. Joseph Hamm's name be submitted for second choice. The motion was seconded by Dr. Tesar and carried. Dr. Swanson moved that Dr. Tesar's name be submitted for third choice. The motion was seconded by Dr. Reding and carried.

Ballots were cast for the recipients of the Distinguished Service Award and for the Community Service Award. The awards will be presented to the winners at the banquet during the annual meeting.

A brief discussion was held concerning the letter received from the AMA on AMA-ERF activities. Dr. Cosand moved that the Council deny the request of the AMA-ERF and leave these activities to the Woman's Auxiliary. The motion was seconded by Dr. Taylor and carried.

The Council reviewed the resolution submitted to the AMA House of Delegates concerning rapport with SAMA. Dr. Elston moved that the Council adopt the resolution. The motion was seconded by Dr. Tesar and carried.

The Council discussed the letter received from the Arizona Medical Association concerning proposed action of the Food and Drug Administration. Dr. Reding moved that the South Dakota State Medical Association support the Arizona Medical Association. The motion was seconded by Dr. Stransky and carried.

Mr. Erickson briefly reviewed correspondence received from Representative E. Y. Berry concerning a proposed law allowing chiropractors to receive reimbursement under the Medicare Law.

Nominations were in order to name a physician to the Board of Directors of the South Dakota Health Research Institute. Dr. Stransky moved that James P. Steele, M.D. be named to the three year term on the Board of Directors. The motion was seconded by Dr. Tracy and carried.

Mr. Erickson briefly reviewed the letter received by Dr. Tesar from the Service to the Blind and Visually Handicapped for the information of the Council.

Mrs. Butler outlined the schedule for meetings to be held during the annual session and asked the Council to note that the second Council meeting will be held on Sunday afternoon following the House of Delegates' session.

Mr. Erickson requested the Council's opinion in purchasing carpeting for the executive office. Dr. Taylor moved that the Council authorize the purchase of carpeting throughout the executive office. The motion was seconded by Dr. Reding and carried.

Dr. Elston reviewed a letter he had received from H. J. MacDonough, M.D. and stated that he had invited Dr. MacDonough to appear before the Council. Inasmuch as Dr. MacDonough did not appear, the Council took action to deny his request.

Dr. Stransky moved that the Council reiterate its continued support of Mr. Erickson. The motion was seconded by Dr. Swanson and carried.

The meeting adjourned at 6:00 p.m.

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## HAHNEMANN MEDICAL COLLEGE AND HOSPITAL

230 North Broad Street

Philadelphia, Pa. 19102

### FUTURE MEETING

#### 20th Symposium

TITLE: SPACE MEDICINE

DATE: August 11-17, 1969

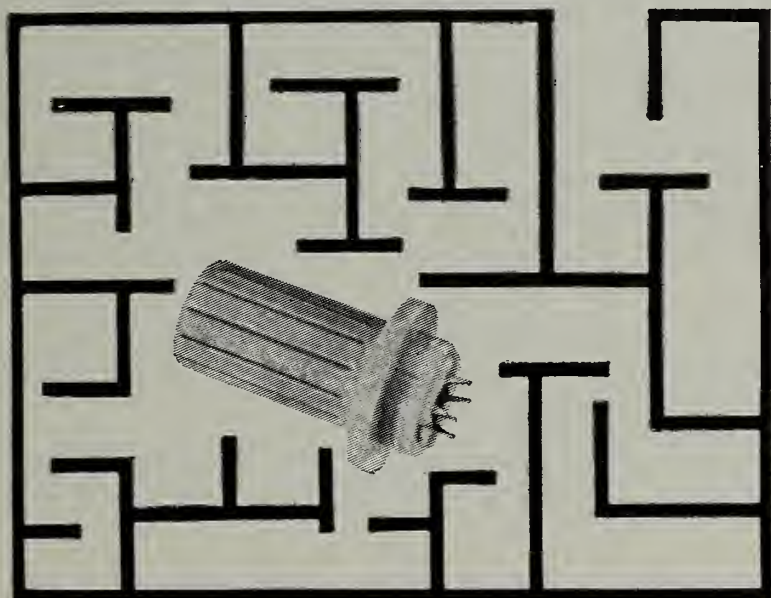
DIRECTOR: Murray J. Miller, M.D.

LOCATION: Taminent-In-The Poconos, Bushkill, Pa.



Information is needed regarding congenital facial defects in the South Dakota Indians of the past. If any physician has or has reason to observe Indian skeletal material from South Dakota having any facial defect resembling a cleft lip or cleft palate, it would be greatly appreciated if information could be sent to J. B. Gregg, M.D., 1600 South Western Avenue, Sioux Falls, South Dakota 57105.

**THE ANNUAL MEETING DATES OF OMAHA MID-WEST CLINICAL SOCIETY** have been firmed — November 3, 4, 5, 1969. We feel fortunate in these date selections in that there are **FOOTBALL GAMES AT LINCOLN — COLORADO** plays **NEBRASKA, NOVEMBER 1,** and **IOWA STATE** plays **NEBRASKA, NOVEMBER 8.**



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## LETTER TO THE EDITOR

April 18, 1969  
USD Medical School

Dear Dr. Elston,

On Saturday, April 12, I was named recipient of the S. D. State Med. Assoc. Award at the annual awards banquet which was held in Sioux Falls.

I would like to express my appreciation to you, and to the other physicians in the state who made this award available.

Next fall, when tuition is due, I'm sure that I will even appreciate the award more!

Thank you,  
Sam L. Mortimer



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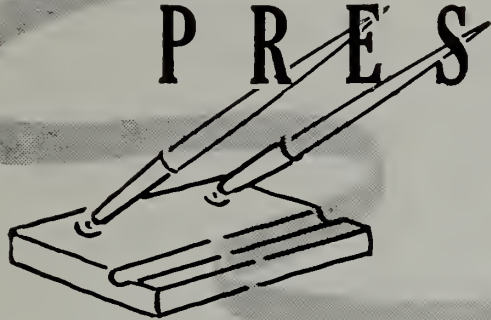




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# P R E S I D E N T ' S P A G E



The time has again come for gathering of the membership at the annual meeting for the purpose of considering matters of importance to medicine in South Dakota. The reports of the deliberations of the Council and the various commissions have been published in the Journal throughout the year. At the annual meeting there will be additional reports to consider and decisions to be made. As this association year closes there are a number of things which I believe deserve your attention and support. The first of these is the consideration of the financial problems of our medical school. If the school is to be preserved it will be necessary to have your support in developing constructive programs for its support. The association must clearly define its position with respect to the future of the medical school and make known to all interested groups exactly where we stand. Your contribution to the Medical School Endowment Fund is an excellent means of direct support. Contributions to AMERF is another way of supporting the medical schools and you may directly support USD by designating your contribution for that purpose. The recent appeal to all physicians by Dr. Rouse for support of AMERF points out the critical situation which exists in medical education nationally. Although the main burden of support for these schools lies on the taxpayer, physicians individually have a greater degree of responsibility for seeing that proper support is forthcoming and that it is maintained.

Secondly, physician involvement in Comprehensive Health Planning at the local level offers a means of planning to meet the medical needs of the future. Areawide planning efforts should be developed with active physicians and local medical society participation. Hopefully it will be possible to dovetail such comprehensive planning efforts with the Heart Disease, Cancer, Stroke (RMP) program.

Thirdly, responsible involvement by physicians in District Medical Society activities with strengthening of local Utilization and Insurance Review Committees is urged. Problems of utilization and claims for services, especially as they relate to the various federal programs, should be reviewed locally. The matter of self-discipline and self-policing is of utmost importance and represents a means of preventing the extension and further development of federal restraints.

Finally, all physicians are urged to become interested in political affairs at the local, state, and national level. By your active support of AmPac and SoDaPac you will strengthen our collective voice in matters political.

John T. Elston, M.D.  
President





## Help the Needy!

This patient may appear to “have everything” but, like so many people getting along in years, she may well be in need—*medically*. Though there is no evidence of organic disease, she does have symptoms (fatigue, vague aches and pains, malaise) that may be indicative of—

**a need to maintain anabolic balance**...to counteract declining gonadal hormone secretion and forestall premature degenerative changes related to estrogen deficiency;

**a need for mood elevation**...to impart a gentle emotional uplift;

**a need for nutritional supplementation**...to compensate for the poor eating habits and subsequent dietary insufficiency of so many older people.

**For these needs, consider MEDIATRIC for your next “needy” patient...medically.**



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# MEDICAL ASSOCIATION

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News Notes • Changes • Births • News

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## Pop's Proverb

Sincere service and friendship is a good hedge against a malpractice suit.

South Dakota physicians attending the annual meeting of the Minnesota Chapter of the American Academy of General Practice held in Minneapolis on March 9 and 10 include Doctors **V. Janavs**, Milbank; **P. Lakstigala**, Sioux Falls; **John C. Rodine**, Aberdeen; **M. Wingert**, Garretson; **R. A. Buchanan**, Huron; **Earl G. Nelson**, Viborg; **Ernest Hofer**, Freeman; **B. R. Skogmo**, Mitchell; **Donald Frost**, Sioux Falls; **A. P. Reding**, Marion; **E. F. Kalda**, Platte; **G. J. Bloemendaal**, Ipswich; **Werner Klar**, Flandreau; **C. L. Voge**, Aberdeen; **E. T. Lietzke**, Beresford; **G. M. Jameson**, Sioux Falls; **L. H. Amundson**, Sioux Falls; and **B. O. Lindbloom**, Pierre.

\* \* \*

**Noel deDianous, M.D.**, Aberdeen, presented slides of a trip to Monterrey and Acapulco, Mexico to the upper division of Spanish students at Northern State College and Presentation College.

\* \* \*

Webster, South Dakota citizens observed "Dr. **Walter Karlin's Day**" in appreciation of the more than forty years of service performed by Dr. Karlin in that community.

**Winston B. Odland, M.D.**, formerly of Huron, has moved to Aberdeen and will be associated with **Drs. Paul and Thomas Bunker** in the practice of otology, laryngology and rhinology.

\* \* \*

At the March meeting of the Aberdeen District Medical Society **E. H. Heinrichs, M.D.**, Watertown, spoke on the Head Start Program.

\* \* \*

**Lawrence Behan, M.D.**, Superintendent at Yankton State Hospital, spoke on "The Drug Program for Geriatric Patients" at the annual convention of the South Dakota Licensed Practical Nurse Association held in Watertown.

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Thirty-five candy stripers in Sisseton attended a lecture and film on pregnancy and delivery presented by **E. J. Batt, M.D.**

\* \* \*

Speakers at a seminar on "Use and Abuse of Drugs Today" sponsored by the Augustana Nursing Students in Sioux Falls were **James Felker, M.D.**, "Diet Pills, No-Doz, Sugar Substitutes"; **Russell T. Orr, M.D.**, "Birth Control Pills"; and **R. B. Leander, M.D.**, "Barbiturates, LSD, Pep Pills, Heroin and Other Habit-forming Drugs."

\* \* \*

**Carson Murdy, M.D.**, Aberdeen, presented underwater pictures illustrating the scuba diving experiences of his family off the shore of Yucatan to members of the local Kiwanis Club.

\* \* \*

**James H. Shaeffer, M.D.**, Sioux Falls spoke on "What to do About Child Emergencies," and **G. F. Tuohy, M.D.**, Sioux Falls spoke on "Burns" at a Home Safety Seminar sponsored by the Sioux Falls Safety Council.

\* \* \*

**G. Robert Bartron, M.D.**, Watertown, spoke at the annual convention of the South Dakota Association for Retarded Children held in Pierre.



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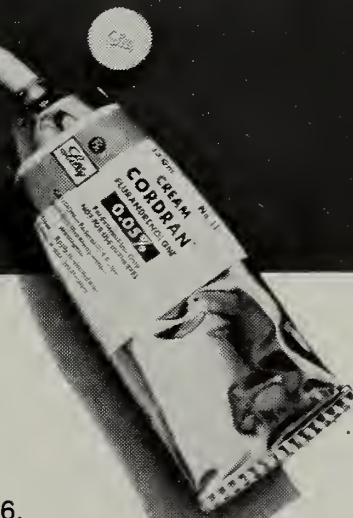
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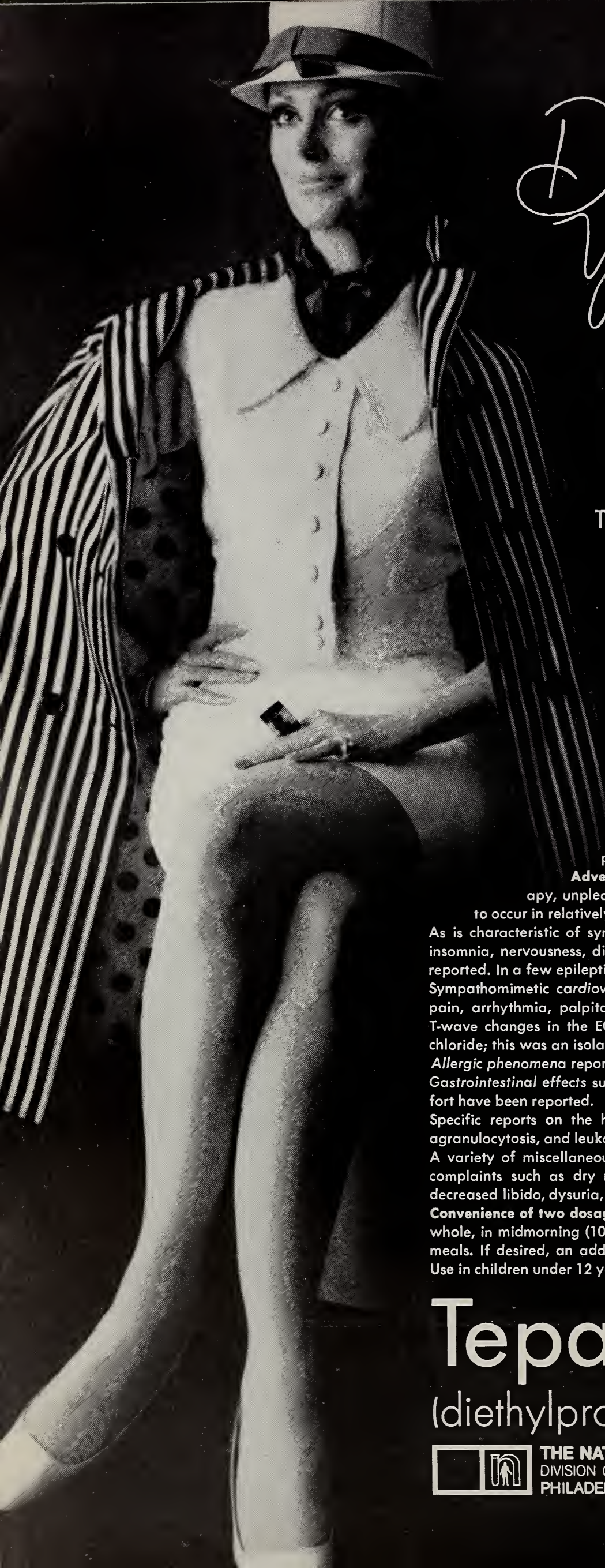
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THE SOUTH DAKOTA  
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JOURNAL OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION  
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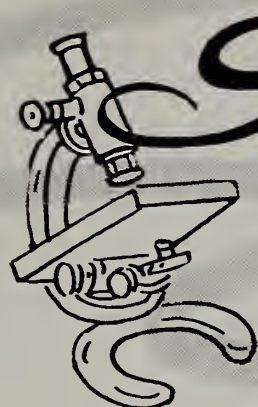
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# Scientific

# PAPER

## THE INTERRELATIONSHIP OF FAT, CARBOHYDRATE AND ATHEROSCLEROSIS

Durward M. Lang, M.D.\*  
Delwin K. Ohrt, M.D.\*\*

Several recent articles have pointed out the relationship between various lipid fractions and atherosclerosis.<sup>1, 2, 3</sup> Historically, the physician has relied solely on the cholesterol determination as an index of atherogenesis in the individual patient. For some years, it has been evident that the cholesterol determination alone will not identify the patient prone to atherosclerosis with a sufficient degree of precision. Epidemiologic studies revealed that though the statistical probability of atherosclerotic complications was related to high serum cholesterol levels, it was also apparent that patients with normal cholesterol levels were also at risk.<sup>5</sup> As methods became available for measurement of other lipid fractions, it became increasingly apparent that triglycerides also play a large part in the predisposition to atherosclerosis. As this relationship became more evident, Frederickson, et al, and others investigated patients with elevated levels of cholesterol or triglycerides. The result of their investigations was a method of classification which is clinically useful. This classification also clarifies other well known abnormalities of lipid metabolism.

Serum lipids will not remain in solution unless they are bound to protein. Therefore, abnormalities of lipid metabolism are referred to as hyperlipoproteinemias.

Once an abnormal individual has been identified by the presence of either an elevated cholesterol or triglyceride value, it is necessary to determine the type of lipoprotein abnormality present so that appropriate treatment can be carried out by the physician. The abnormality is usually typed by means of electrophoresis. The electrophoretic pattern should be interpreted by the physician who is aware of the clinical situation or a misleading report may occur. Proper specimen collection is critical. The patient should be on his usual diet for two weeks. The serum is drawn after an overnight fast (14-16 hours). Refrigeration is not necessary. Freezing is contraindicated.

### BACKGROUND

There are two important lipid fractions — chylomicrons and beta lipoproteins. Chylomicrons are absorbed as micelles through the gastrointestinal mucosa and enter the blood stream. They are either broken down to meet energy requirements or they are stored in peripheral adipose tissue after being acted upon by the enzyme, lipoprotein lipase. After an overnight fast, the normal patient will not show chylomicrons.

The second large group of important lipids is the beta-lipoproteins. These fall into two categories, depending on their electrophoretic mobility — Beta lipoprotein and pre-beta lipoprotein. Beta-lipoproteins are normally present even in the fasting state. They are composed chiefly of cholesterol and contain a rather large amount of protein. Because of characteristic flotation in the ultracentrifuge they are referred

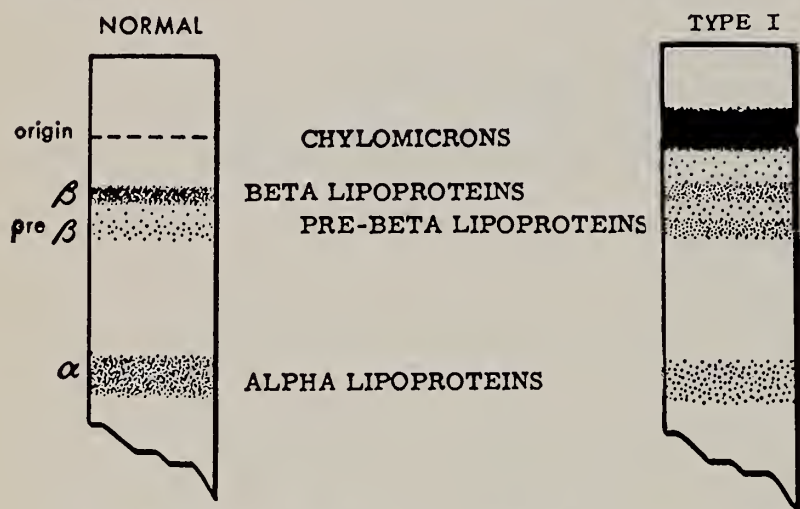
\*Pathologist, Sioux Valley Hospital, Sioux Falls, South Dakota and Clinical Assistant Professor of Pathology, University of South Dakota, School of Medicine, Vermillion, South Dakota.

\*\*Senior Resident in Pathology, Sioux Valley Hospital, Sioux Falls, South Dakota and Teaching Fellow in Pathology, University of South Dakota, School of Medicine, Vermillion, South Dakota.



to as low density lipoproteins (LDL). Pre-beta lipoproteins are formed by the action of the liver on carbohydrate. They are not present after an overnight fast if the patient is on his usual diet. They are also known as very low density lipoproteins (VLDL) because of their characteristic flotation in the ultracentrifuge. With this background in mind, a brief synopsis of each of the five types of hyperlipoproteinemia is submitted.

### Type I



Adapted from Levy, R.I. and Frederickson, D.S. American Journal of Cardiology. 22: 576, 1968.

Hepatosplenomegaly, eruptive xanthomas, and lipemia retinalis are the prominent clinical features. These patients lack the enzyme, lipoprotein lipase. Abdominal pain is common. Onset is in infancy.

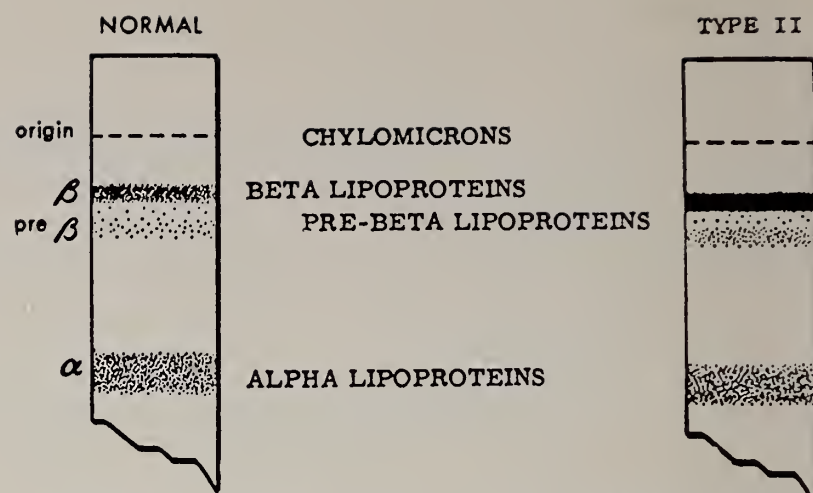
The cholesterol is usually elevated and the triglyceride level is markedly elevated. Lipoprotein electrophoresis reveals a marked increase in the chylomicron band. Other bands are usually moderately decreased. The serum is strikingly milky. Treatment is specific and effective. Restriction of fat in the diet to 5% of calories results in prompt cessation of symptoms. Medium-chain triglycerides are a good substitute for the fat in the diet.

Type I hyperlipoproteinemia may occur in the adult secondary to diabetes mellitus, hypothyroidism, alcoholism, or pancreatitis. This type is **not** thought to be associated with accelerated atherosclerosis.

### Type II

This is the most common type. It is most serious because it is associated with severe atheromatosis, especially of the coronary arteries. When familial, it is inherited as a mendelian dominant disorder with onset usually in adulthood.

The cholesterol value is often very high while the triglycerides may be normal. The serum is usually clear. The affected patient often relates



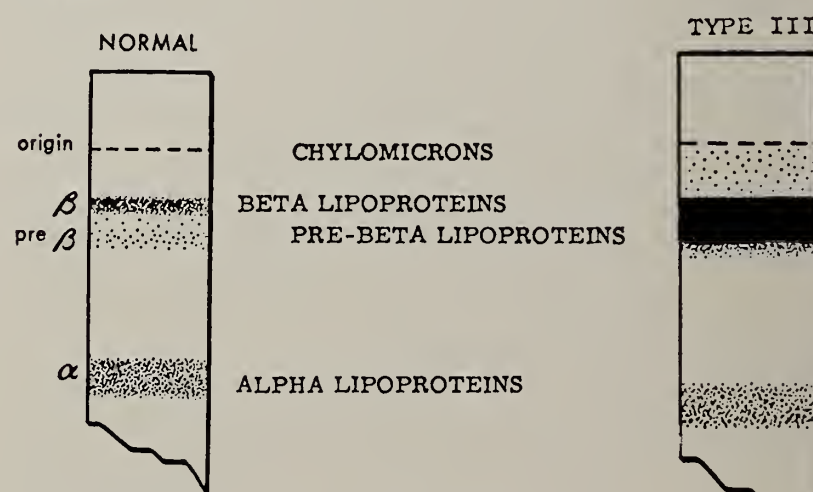
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a family history of coronary artery disease in the 3rd, 4th or 5th decade. Other clinical features are the presence of xanthelasma, **arcus corneae**, tendon xanthomas, and tuberous xanthomas.

Strisower, et al, have separated patients with Type II hyperlipoproteinemia into two subgroups according to whether or not tendon xanthomatosis is present. Treatment is much more effective if the patient does not yet have tendon xanthomatosis. Treatment consists of clofibrate (2 gm. daily) coupled with dextrothyroxine if necessary.<sup>7</sup> Cholestyramine resin (16-32 gm. daily) has been used by some physicians with good results, but it is expensive.<sup>4</sup> Removal of saturated fats from the diet and substitution of unsaturated fats is indicated.

Type II hyperlipoproteinemia may occur secondary to hypothyroidism, obstructive liver disease, nephrotic syndrome, or the dysproteinemias. In these cases, treatment of the underlying disorder is indicated.

### Type III



Adapted from Levy, R.I. and Frederickson, D.S. American Journal of Cardiology. 22: 576, 1968

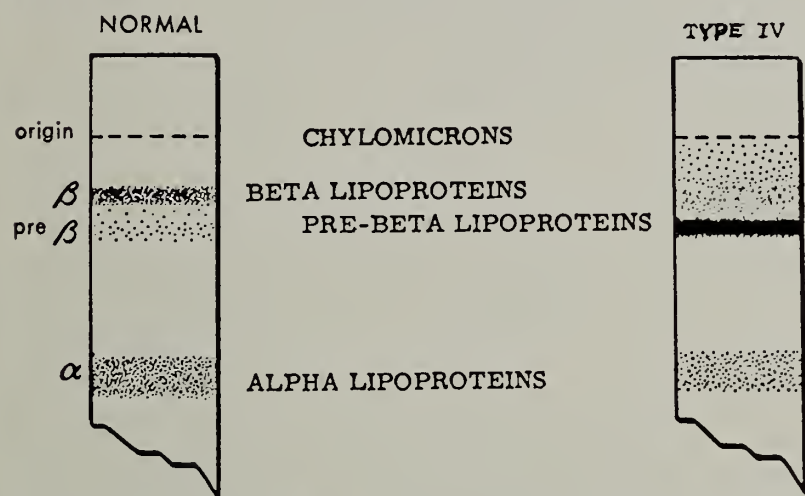
This type is unique in that it is a familial in-born error and is not secondary to other diseases. In the classic case, both the cholesterol and triglyceride levels are elevated. Eruptive xan-



thomas are common and accelerated atherosclerosis of both coronary and peripheral arteries is the rule. It may be inherited as an autosomal recessive and expression is usually in adulthood. Therapy is both effective and specific. Clofibrate (2 gm. daily) and a low carbohydrate diet usually result in normal lipid levels. Weight reduction to the ideal weight is considered to be helpful by most authorities.

This disorder is not presently thought to be secondary to any known disease. An abnormal glucose tolerance test is sometimes found as is an elevated uric acid value.

#### Type IV



Adapted from Levy, R.I. and Frederickson, D.S. *American Journal of Cardiology*. 22: 576, 1968.

This type is the example par excellence of carbohydrate-induced hyperlipemia. The abnormal lipid can be induced by a high carbohydrate diet or will usually disappear when carbohydrates are restricted. This type is common.

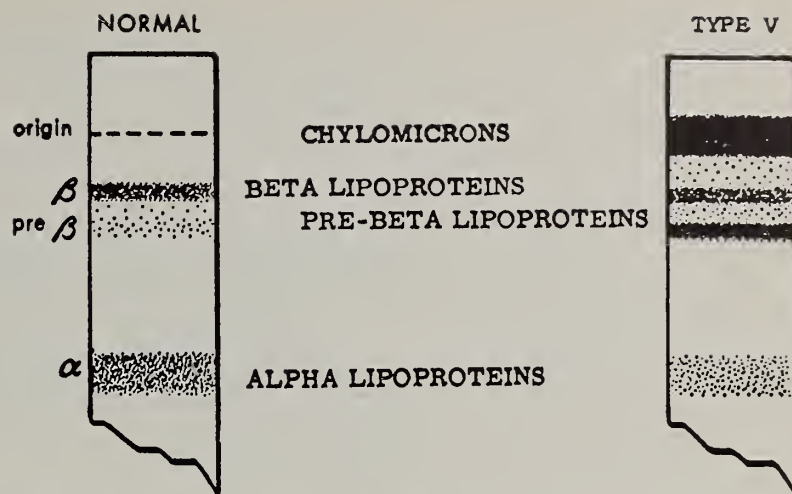
The cholesterol value is usually normal and the triglycerides are elevated. Eruptive xanthomas sometimes occur. Accelerated atherosclerosis is the rule. The disorder is uncommon in children. When familial, it is inherited as a mendelian autosomal dominant trait.

Dietary management with reduction to ideal weight coupled with replacement of dietary carbohydrate with poly-unsaturated fats is most effective.

Type IV hyperlipoproteinemia may occur secondary to diabetes mellitus, pancreatitis, acute alcoholism, or hypothyroidism. In these cases, treatment of the underlying disease is indicated. Birth control pills and pregnancy also give this pattern in a high percentage of instances.<sup>6</sup>

#### Type V

Elevated cholesterol and triglycerides are usually found, sometimes reaching extremely high levels. Abdominal pain, eruptive xanthomas and occasionally hepatosplenomegaly



Adapted from Levy, R.I. and Frederickson, D.S. *American Journal of Cardiology*. 22: 576, 1968

are seen. Onset is usually in adult life. An abnormal glucose tolerance test is common. It may be familial, but the mode of inheritance is not clear.

Treatment includes reduction to ideal weight, coupled with a diet low in both carbohydrates and saturated fats. Clofibrate (2 gm. daily) is effective in some patients, but not all. This disorder may occur secondary to hypoinsulinemic diabetes, myxedema, nephrosis, alcoholism or pancreatitis. It infrequently occurs as a primary disorder.

#### SUMMARY

Abnormalities of the lipoproteins have been implicated in the development of arteriosclerotic vascular disease of both the coronary and peripheral arteries.

Specific therapy depending on the type of hyperlipoproteinemia is available. Screening tests for hyperlipoproteinemia should include both the cholesterol and triglyceride determinations. If either is elevated, the abnormality can be typed by lipoprotein electrophoresis so that the appropriate therapy can be instituted by the physician. The therapy in each case is determined by the type of hyperlipoproteinemia present.

An important development has been the demonstration of the increased carbohydrate sensitivity in some patients prone to atherosclerosis.

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TYPE	SERUM	CLINICAL CHARACTERISTICS	SERUM CHOLESTEROL	SERUM TRIGLYCERIDES	ADDITIONAL FINDINGS
I	Always milky	Children Xanthomas, abd. pain, steatorrhea, lipemia retinalis, lack "lipoprotein lipase"	Normal to moderately elevated	Markedly elevated	GTT Normal
II	Often clear	Often familial-arcus corneae-xanthelasma-accelerated coronary atherosclerosis - Autosomal dominant	Markedly elevated	Normal to elevated	GTT usually normal
III	Usually turbid	Peripheral and coronary artery disease, accelerated. Xanthomas. Autosomal recessive	Moderately elevated	Variable	GTT usually abnormal
IV	Usually turbid	Often familial-Accelerated peripheral and coronary disease. Associated with pregnancy & B.C. Pills. Autosomal dominant	Slightly elevated	Usually elevated	GTT usually abnormal
V	Usually turbid or milky	Occasional hepatosplenomegaly otherwise similar to Type III & Type I together	Elevated	Usually moderately elevated	GTT usually abnormal

DISEASES CAUSING SECONDARY HYPERLIPOPROTEINEMIAS	DIETARY RESTRICTION: RESPONSE TO REMOVAL OF: CARBO- HYDRATE		SENSITIVE TO TREATMENT WITH	
		SATURATED FAT	CLOFIBRATE	CHOLE- TYRAMINE
Type I Uncontrolled diabetes mellitus, pancreatitis, hypothyroidism, acute alcoholism	None	Marked	No	No
Type II Fatty diet, hypothyroidism, myeloma, obstructive hepatic diseases, hypoproteinemia (nephrotic syndrome, etc.)	None	Often moderate	Usually	Yes
Type III None	Usually marked	Partial	Marked	No
Type IV Those causing Type I patterns, together with nephrotic syndrome, pregnancy, birth control pills, gout, Gaucher's disease, glycogen storage disease and hyperglobulinemia	Usually marked	Partial	In some cases — Therapeutic Trial may be necessary	No
Type V Diabetes mellitus, acute alcoholism and chronic pancreatitis	Usually moderate	Usually moderate	Therapeutic Trial if strict diet not tolerated	No

Compiled from data in D. S. Frederickson, R. I. Levy, & R. S. Lees: Fat transport in lipoproteins—an integrated approach to mechanisms and disorders. NEW ENG. J. MED., 276:148, 215, 273, 1967.





## TREATMENT OF SHOCK FOLLOWING MYOCARDIAL INFARCTION

by  
Jay N. Cohn, M.D.\*

While newer refinements in patient monitoring and management have significantly reduced the mortality from acute myocardial infarction, the occurrence of shock still carries a grave prognosis. Once shock develops the survival of the patient is entirely dependent on the perception, attentiveness and judgment of his physician.

Shock is characterized by a critical reduction in tissue perfusion. Inadequacy of blood flow impairs organ function and disrupts the integrity of normal metabolic pathways. If shock is not promptly corrected, the flow deficiency leads to organ damage, metabolic acidosis and a vicious cycle resulting in progressive circulatory deterioration and death. The sooner the syndrome can be recognized the more likely is therapy to be effective. The need for prompt recognition of shock must not, however, be satisfied at the expense of "over-diagnosis." It is in this initial evaluation that the physician's perceptiveness is critical. He must be able to recognize the difference between the mildly hypotensive patient who is adequately perfusing his tissues (and needs no immediate treatment)

and the patient who is in the incipient stages of shock and requires prompt therapy to restore peripheral blood flow.

In considering the diagnosis of shock attention should be given to the following signs:

1. **Skin temperature.** Warm skin indicates adequate cutaneous blood flow and usually a fairly well maintained cardiac output. Cool, clammy skin indicates sympathoadrenal discharge, a sign of reflex vasoconstriction in response to a fall in cardiac output.
2. **Peripheral pulses.** Thready or absent brachial and radial pulses indicate either severe hypotension or more often intense vasoconstriction. In either case urgent treatment is indicated. Femoral artery pulsation will be very weak if the patient is hypotensive but the pulsations are bounding in the presence of peripheral vasoconstriction.
3. **Auscultatory blood pressure.** This is not a reliable guide to intra-arterial pressure in shock. A low cuff pressure has the same significance as weak upper extremity pulses. However, an absent auscultatory pressure usually indicates inadequate blood flow and the need for treatment.
4. **Mentation.** If the patient is alert and responsive cerebral blood flow is probably adequate. Agitation, confusion or som-

\* Hypertension and Clinical Hemodynamics Section, Veterans Administration Hospital, Washington, D. C. Department of Medicine, Georgetown University Medical Center, Washington, D. C.

Prepared by the **South Dakota Heart Association** for this Journal.



nolence are signs of deficient cerebral blood flow and usually are associated with a fall in arterial pressure.

5. **Urine output.** Urine flow less than 20 ml/hour with a low urine sodium concentration is evidence of inadequate renal blood flow which if not corrected, can lead to tubular necrosis.
6. **Cardiac function.** Persistent or recurrent chest pain or arrhythmias in the presence of other signs of hypotension may be accepted as presumptive evidence of functional impairment of coronary blood flow.
7. **Acidosis.** Low arterial blood pH and elevated blood lactate mean reduced tissue oxygenation. Arterial blood gas and pH studies are invaluable in the management of patients in shock.

The presence of one or more of the above signs of inadequate tissue blood flow in a patient with an acute myocardial infarction is presumptive evidence of shock. Mild hypotension in the absence of any of these signs should not be diagnosed or treated as "shock."

When the diagnosis of shock has been made, several questions regarding the hemodynamic status of the patient should be answered before definitive treatment can be instituted:

1. **Is the patient severely hypotensive?** Hypotension is an immediate threat to life because of the associated impairment in cerebral and coronary blood flow. Since the cuff pressure may be low even though arterial pressure is normal, the strength of femoral arterial pulsations often is a more reliable guide to blood pressure. In some patients direct recording of arterial pressure may be necessary.
2. **Is blood volume adequate?** Some patients become hypovolemic in the hours following an acute myocardial infarction and the reduction in plasma volume may then become an important factor in the genesis of shock. The central venous pressure (CVP) is a vital guide to the adequacy of circulating volume and should be monitored in all patients with shock. This can be accomplished by threading a catheter through a needle in the brachial, femoral or subclavian vein and advancing it into the thorax. A low CVP (less than 6 cm H<sub>2</sub>O with the zero level at the mid-chest) is an indication for a trial of volume expansion. In myocardial infarction the left ventricle often is in failure while CVP is normal. Therefore, volume expansion should be carried out

cautiously. A rise in CVP of more than 2 cm. H<sub>2</sub>O during infusion of dextran, saline or other fluid indicates that volume has been adequately restored. If shock is not corrected by volume expansion the presence of significant left ventricular failure can be assumed.

3. **Is cardiac function severely impaired?** If peripheral blood flow is markedly reduced and the CVP is high, then myocardial failure is obviously an important factor in the shock. Heart rate is not a very useful index of cardiac function. Indicator dilution cardiac output data are of value in the evaluation of myocardial function in selected cases.
4. **What is the status of the peripheral vessels?** Is there evidence of intense sympathetic discharge? This usually is manifested by cutaneous vasoconstriction and indicates renal vasoconstriction as well. In early stages of shock peripheral constriction may support fairly normal arterial pressure despite progressive tissue hypoperfusion and lactic acidosis.

The purpose of therapy in shock is to restore adequate organ perfusion. Effective therapy must be based not only on an understanding of the physiological disturbance in the individual patient but also on a thorough understanding of the pharmacological action of the useful drugs.

The following drugs may be valuable in certain patients with cardiogenic shock:

1. **Isoproterenol.** This is a catecholamine with pure beta adrenergic activity; that is, it stimulates the heart and dilates peripheral vessels. It is probably the agent of choice when impairment of cardiac function has led to severe reduction in cardiac output, especially when reflex vasoconstriction is present. Isoproterenol 1 or 2 mg should be diluted in 500 ml 5% dextrose in water and the rate of infusion gradually increased until the signs of shock are corrected or cardiac rhythm disturbance limits further administration. In some cases the concentration of isoproterenol must be increased as much as 2 mg/100 ml to obtain a satisfactory effect. Lidocaine may be effective in controlling ventricular irritability during isoproterenol infusion. In some hypotensive patients isoproterenol will not significantly increase arterial pressure and cerebral and coronary perfusion are not improved. In this situation a vasoconstrictor-inotropic agent may be necessary.



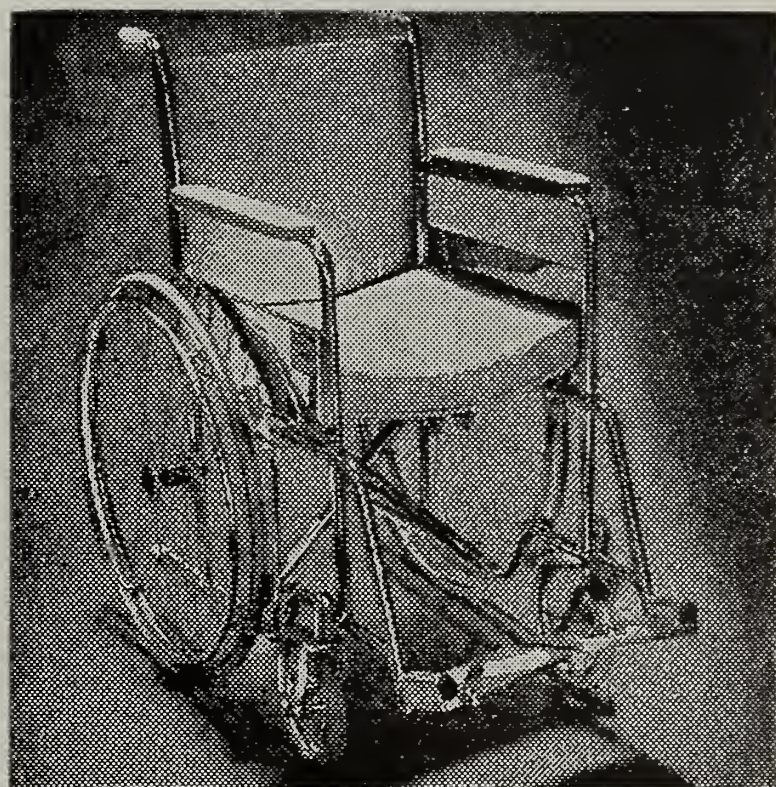
2. **Levarterenol (Norepinephrine) or metaraminal.** These drugs have an alpha adrenergic effect (vasoconstrictor) on peripheral vessels combined with myocardial stimulating properties. Because these drugs may reduce renal and splanchnic blood flow they should be used only when isoproterenol is ineffective. The infusion rate should be the smallest amount necessary to increase systolic arterial pressure over 100 mm Hg.
3. **Digitalis.** The cardiac glycosides have inotropic effects less potent than the catecholamines. They also have vasoconstrictive properties when used intravenously. It is probably best to treat cardiogenic shock acutely with the adrenergic inotropic drugs above and to administer digitalis orally for its more sustained effect.
4. **Atropine.** If shock is associated with sinus bradycardia, 1 mg atropine intravenously may be effective in restoring heart rate and blood flow. Drugs, such as atropine and isoproterenol, which result in an increase in atrial rate must be used cautiously in the presence of atrioventricular block. Under these circumstances, an increase in atrial rate may result in a decrease in ventricular rate.
5. **Furosemide.** This potent diuretic can help establish urine output in the oliguric patient. After shock has been treated with the vasoactive compounds above a diuretic response to intravenous infusion of 200 mg of furosemide indicates that renal perfusion is adequate. If oliguria persists, however, more aggressive attempts to improve blood flow are necessary.
6. **Sodium Bicarbonate.** If the arterial pH is less than 7.35 sodium bicarbonate should be administered in amounts adequate to restore pH to above that level. Treatment should be initiated with 40-100 meq sodium bicarbonate and further alkali therapy based on arterial blood pH measurements.
7. **Ventricular Pacing.** If shock and marked bradycardia co-exist, increase in ventricular rate via catheter electrode pacing is often of great clinical benefit.

Newer pharmacological approaches such as the use of sympathetic blocking agents and other inotropic drugs, such as dopamine and glucagon, are still in the experimental stage.

Effective management of shock requires not only initiation of the correct therapy in the cor-

rect amounts, but also close continuous monitoring of cardiovascular function. Adrenergic drugs should be weaned and discontinued as soon as possible. Blood volume may be inadequate after cardiac function is improved, and a falling CVP may be an indication for administration of dextran, even in patients who have manifested heart failure only a few hours before. If rhythm disturbances persist electrical pacing through a transvenous pacemaker may help improve peripheral blood flow.

It is clear that intelligent use of the means currently available can be effective in salvaging many patients who would otherwise succumb to cardiogenic shock. In others, however, the impairment in cardiac performance is so severe that medical therapy is ineffective. In this selected group of patients mechanical means of temporary circulatory support may eventually become an important adjunct to management.



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## MEDICARE ADMINISTRATIVE ALTERNATIVES, PROSPECTS AND TRENDS\*

John A. Buesseler, M.D.

Columbia, Missouri

With the enactment of Medicare legislation by the 89th Congress in 1965, the federal government committed itself to the responsibility of financing the health needs of a large segment of the population. The magnitude of the program gives it a potentially overwhelming directional influence over the health care system of the nation. As a prognostic view of these influences, this paper was presented originally at the 12th Annual Forum of the National Committee for Research in Ophthalmology and Blindness. Doctor Buesseler holds a Master of Science degree in Business Administration and is a Ph.D. candidate in Business and Public Administration. He is a Professor of Surgery (Ophthalmology) at the University of Missouri School of Medicine.

Dateline, Washington, D. C., Oct. 19, 1968: The American farmer of the future may be just on the bottom step of a giant ladder-like system that will plant, harvest, process and package the nation's food all under one economic roof. However, the prospect, as envisioned by a number of agricultural experts, is not viewed with universal enthusiasm. Professor Elmer R. Kiehl, Dean, College of Agriculture, University of Missouri, said that a farming system too tightly structured could result in "economic feudalism

not unlike that of the Middle Ages in Western Europe." Under such circumstances, Kiehl said that the farmer, as he is thought of today, would no longer exist.

He was speaking of the main topic under discussion in Washington at the Agricultural Research Institute of the National Academy of Science. The hybrid-corporate or quasi-non-governmental corporate farm of the future would contract the actual tilling of the soil and tending of animals. Efficiency, relying upon the use of computers, would be the keynote in virtually every phase of the giant corporation from scheduling and planning to projecting consumer demand. Big food processing companies and nationwide grocery chains already are headed in this direction, according to the specialists.

The relative position of the farmer economically in the American food production-distribution system is indicated by the fact that the retail consumers spend 100 billion dollars annually on food while the farmers receive 12 billion in income.<sup>1</sup>

That sufficiency of food is considered a right of members of our society is fairly well attested

\* Reprinted from pages 179 to 181 of the March, 1969, *Missouri Medicine*.  
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to by the welfare laws. That farming is considered a quasi-utility also is fairly well supported by the mechanisms of subsidy and regulation effected through the Department of Agriculture.

### Directional Forces

This news release indicates rather forcefully that medicine is not alone in feeling the pressures for rapid and sweeping organizational change. Many of the same basic forces affecting the health care system also are affecting other organizational systems in this country.

My purpose is to identify and focus on some of the directional forces which are operating in our social environment and are directly or indirectly influencing the course of change occurring in the American health care system in general and in the administrative conduct of Medicare in particular.

It is not my intention to suggest value judgments regarding the desirability or lack of desirability of the direction in which these forces are moving society, but, rather, to explore briefly their impact as manifested in the trends affecting our medical care system.

**Efficiency.** Foremost among these trends is the drive for efficiency, particularly in the use of facilities. The echelonment of health institutions has been well demonstrated by the military services. Much is found in the current literature about comprehensive health plans and hospital administration, suggesting that these military techniques and devices be used in the civilian sector and that centralized teaching in specialty care institutions be the hub of the wheel around

which satellite facilities with lesser capabilities would exist.

This already has been occurring on an evolutionary basis. With greater control of society's direction by legislation, however, the process may well increase. Such echelonment will place teaching hospitals in a position of particular pre-eminence not only educationally, but in the rendering of care and in the referral scheme for patients.

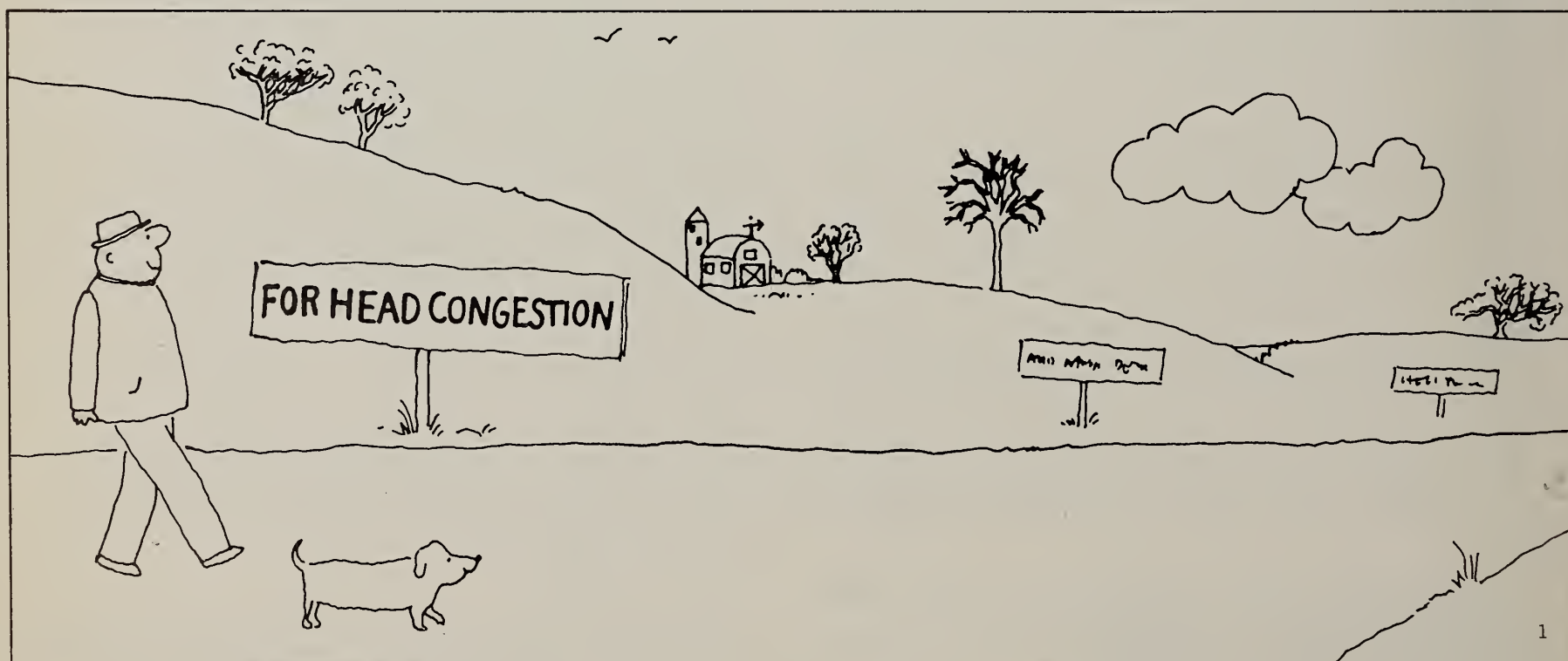
Additionally, the drive for efficiency is directed to the use of personnel. The big push in recent health care legislation governing allied health manpower points dramatically to this. Ancillary personnel, both in administrative and in technical health fields, is expected to come into the practice of medicine in much greater numbers and variety.

This is intended to supplement the capabilities of the individual physician so that his skills are distributed more widely and so that he is less encumbered with details of administrative processing and with the more mechanical routine details of diagnostic and therapeutic procedures.

The implications of enlargement in this body of health care workers is quite apparent. Ophthalmology has felt this as much or more than some other fields in medicine. For several decades, the optometrist has represented this kind of skill, operating autonomously rather than as an integrated part of the health team.

**Economy.** The second trend which seems apparent, regardless of the national political drift, is for economy. Greater emphasis by the government on cost accounting and cost control is being instituted. The concept of unit cost in

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health care has great attraction to many hospital controllers, governmental planners and administrators. It is a unit by which they can measure service. Whether or not it is a snare and a delusion is open to question. Whether grading services by X number of unit values is one with which the physician can live remains to be seen.

In the realm of hospital services, unit cost is making its biggest advances largely under the pressure of the reasonable cost element in the Medicare law. As yet, reasonable cost has not been imposed upon the physician. Reasonable charges have. By virtue of steady escalation of financial commitment by the government to the Medicare-Medicaid program, the dollar totals have far exceeded cost estimates prior to institution of the program. Powerful forces are declaring that it is necessary to control the reasonableness of the costs and the charges.

In this regard, organized medicine may lose the support of one of its staunchest allies, private industry. Industry itself is pressing for greater economy and efficiency in the delivery of health care. This drive for economy is manifested in pressure for more restricted budgeting of costs for services rendered by both the hospitals and physicians.

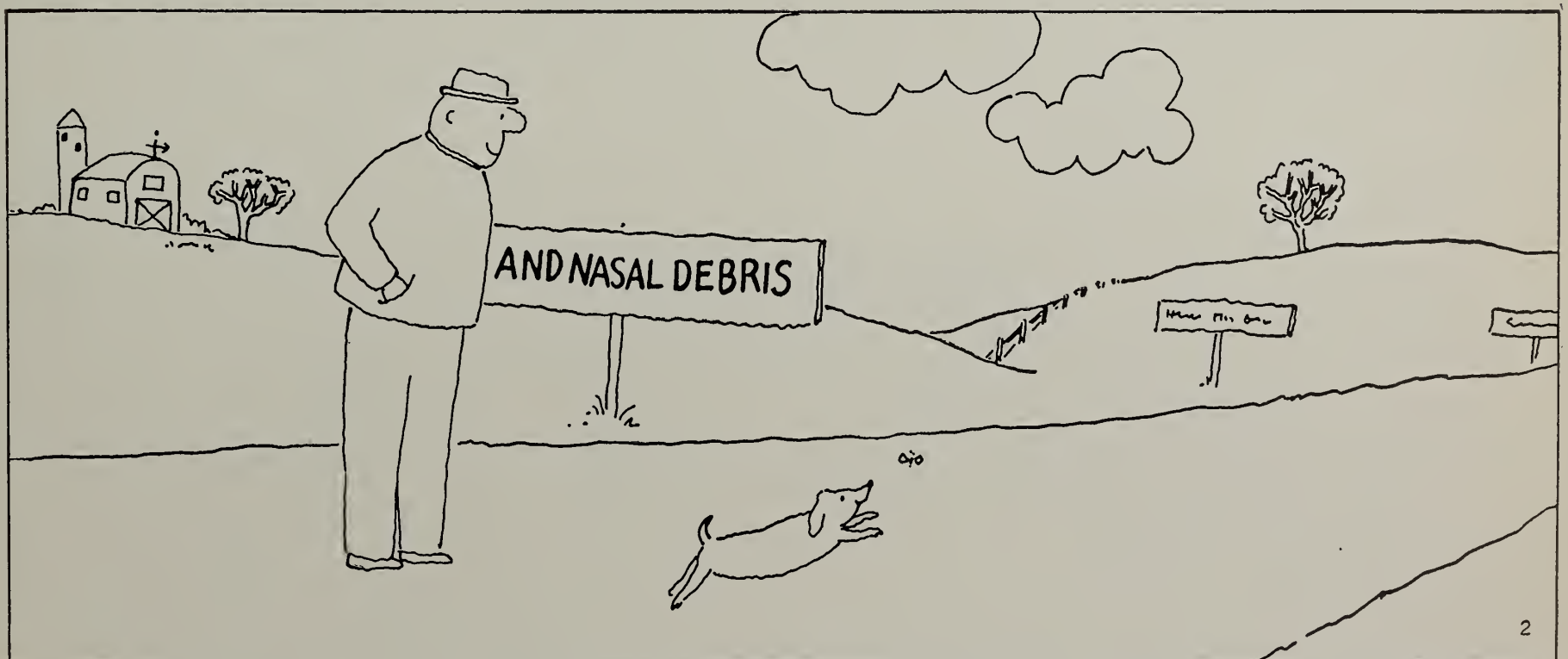
The most popular concept under consideration is **advance budgetary review** for hospitals under the Medicare program. This allows for justification, acceptance of cost and payment before the fact rather than payment after the fact. The

present scheme of paying after the fact does not appear viable. Hospitals are being pressed to come forth with advanced, detailed budgets to be reviewed prior to any commitment on the part of the government for Medicare payments.

Most people who have been involved with government-sponsored research are familiar with such techniques in regard to research grants. The hospitals, as yet, have not been fully subjected to it.

How will this affect the physician who is geared to a fee-for-service varying with the number of visits and the type of case? It is apparent that the reasonable charge (usual and customary) is only an interim situation. It was necessary for Congress to incorporate that condition in the Medicare law in order to obtain physician acceptance. Organized medicine has embraced the concept but, with constant pressures for cost control, most of the people concerned with the Medicare legislation are convinced that the reasonable charge is not going to last. The alternatives are obvious: (1) the fixed fee schedule or (2) the annual contract salary.

**Control.** The third drive which is being experienced across society is that for centralized control. Except for those short periods of restrictive legislation accompanying our past wars, the Comprehensive Health Planning Act is the single, most sweeping and broad centralized control of the allocation of resources that Congress has ever passed.



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Controls via the Medicare mechanism appear to be manifested in a centralized control of quality. No longer will the medical profession have the sole prerogative. Care standards, however, need better defined criteria than have been developed to measure quality. The methods now used for measuring quality, utilization review committees, tissue committees, etc., are off target in providing a true measurement. More and more the payer will inject his influence into the determination of quality. And more and more the payer is the federal government.

It appears that terms of access to health care services will be removed more completely from the medical profession and placed in the hands of the third party payer. The trend for more complete insurance coverage through government control appears on the horizon. Coverage of all age groups and income levels is becoming a bipartisan political goal. Many devices have been proposed; particularly noteworthy among them are the use of negative income tax payment and variable premium payment based on reported income level.

What is the status of the physician going to be in relation to other health care workers? This, too, will not be decided exclusively by the medical profession, but rather by the vested interest groups that become established through increase in ancillary workers and through consumer interests in health care. Not unlike the field of agriculture, the cost of health care services to the third party payer indicates that the physician's portion of total cost is rather small.

For him to maintain his position of preeminence and captain of the ship will require negotiation in the democracy of interaction between vested interest groups. This will extend to working conditions with the terms of practice and remuneration negotiated between vested interest organizations and payer.

I would like to quote the authorities Herman and Anne Somers from their Brookings Institution report titled **Medicare in the Hospitals, Issues and Prospects**: "It should be obvious by now that the term 'reasonable costs' is by no means self-defining. The law inevitably left much to be resolved through bargaining, pressure and counterpressure — a normal process in setting a price for a massive purchase. It establishes certain boundaries, but permits broad, administrative discretion, after consultation with the parties in interest, and consideration of customary practices. Nothing else would have been practical. Only theoretically can government unilaterally set the price at the point it considers right. In a free economy, government decisions must find an equilibrium between abstract justice and operational feasibility. The government is a powerful buyer, but the sellers are free men and free institutions. They must come from the deliberations reasonably satisfied that they have been dealt with fairly, if the program is to operate with the necessary consent and cooperation."<sup>2</sup>

Of all the trends in Medicare, this latter trend has the greatest impact on the individual practicing physician. It is apparent that the man





without an organization to represent him, is a man without representation. With the advent of Medicare, the medical societies, either the existing ones or ones to be evolved, were placed in the position in which they could become the physicians' most important representatives at the bargaining table.

### Summary

I have intended to keep out of this presentation any value judgments. The intent has been to identify trends, not necessarily situations that are currently operational. What is operational in Medicaid (Title XIX) indicates a potential trend for Medicare (Title XVIII), both of which are part of the same Congressional Act. What is happening in New York under Medicaid actually is happening under the Act which is generally referred to in its entirety as Medicare. **Although no medical society operating on a national or regional basis has fully accepted the role of collective bargaining agent, its organizational presence in a socio-economic system of vested interest groups mediated by Medicare legislation is pushing it toward that functional position.**

The goals of the trend-producing directional forces are greater efficiency, greater economy and greater centralization of control. **The guidance the medical profession can effectively exert in the shaping of these goals for the best protection of the patient is dependent upon the direction taken by the organizational changes presently occurring within the profession.**

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## ANNOUNCEMENT

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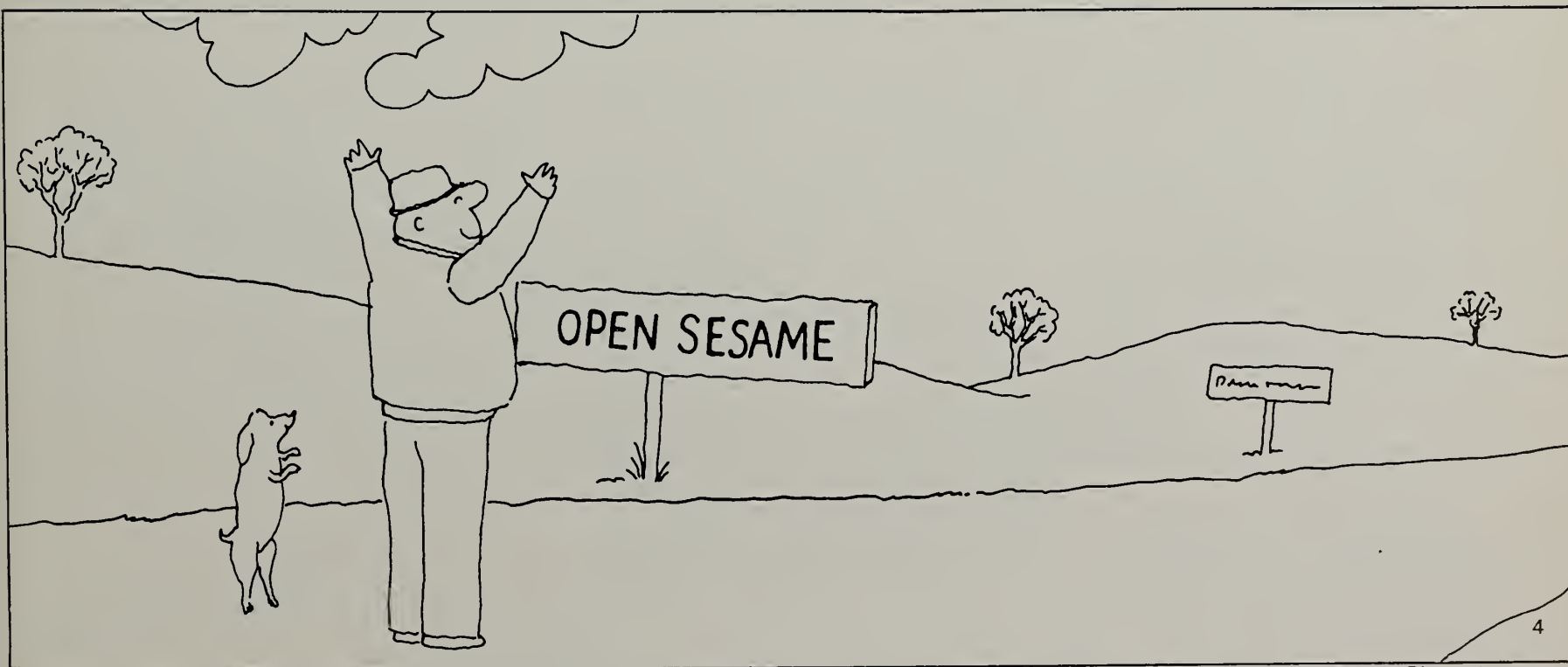
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# 22nd ANNUAL NATIONAL CONFERENCE ON RURAL HEALTH

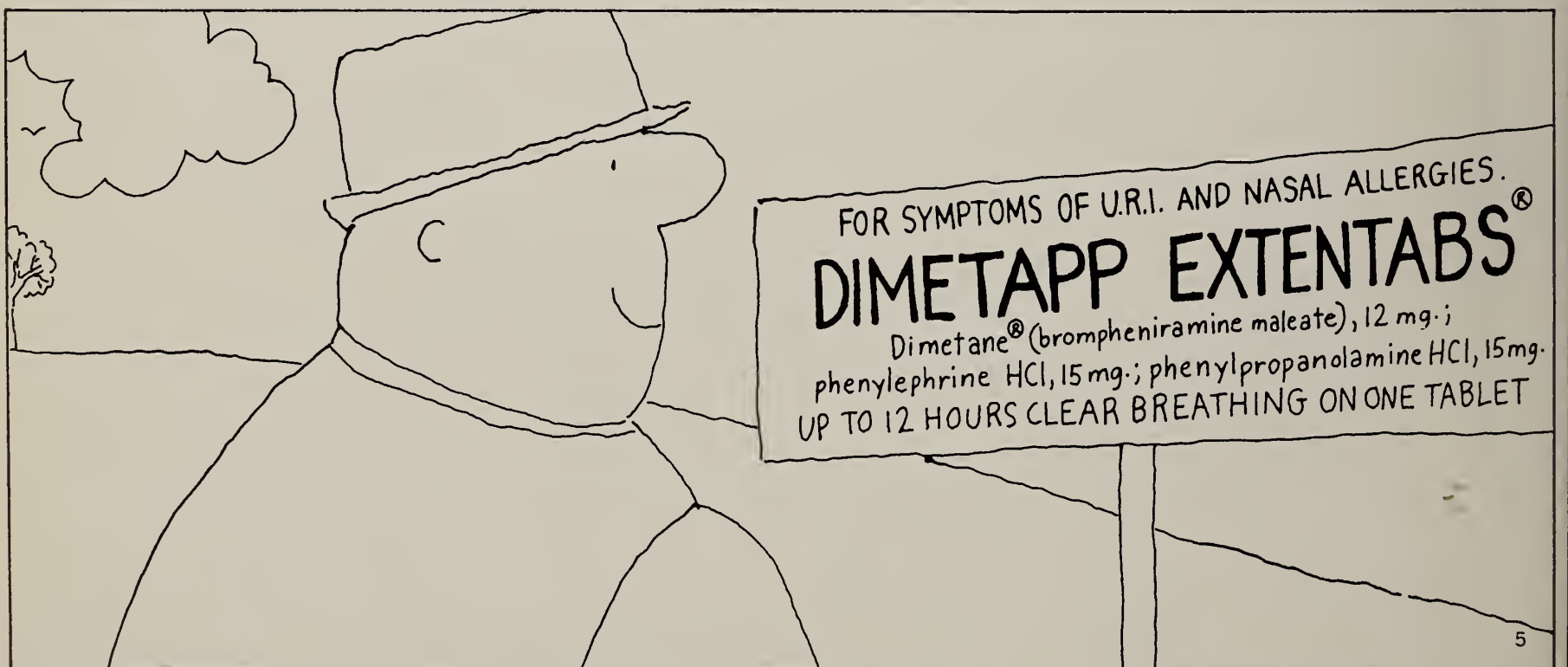
Richard G. Belatti, M.D.  
Madison, S. D. 57042

To borrow a phrase from the Pennsylvania Dutch, I feel "wonderful good" about living and working in South Dakota. The 22nd annual National Conference on Rural Health was convened in Philadelphia on March 21st and it was my privilege to attend as the representative from South Dakota. The theme of this years conference was "Meeting Rural Health Needs in Our Changing Times." The purposes of the conference were:

1. To provide an interchange of health information among conference participants.
2. To develop effective planning methods for community health services.
3. To discuss effective ways for delivery of health services in rural areas.
4. To review methods for efficient utilization of health resources.
5. To study community organization for meeting health needs.

The first paper was the most stimulating and challenging. It was presented by Delbert Oberteuffer, Ph.D., professor of Health Education at Ohio State University and editor of the "Journal of School Health." This paper, entitled "Health Education as a Foundation for Healthful Living," really tells it like it is. Dr. Oberteuffer said, "One of the greatest opportunities to improve

life in these United States lies in the development of full blown programs of health education in every school district and a full blown program of public health in every community." It is his belief that the very foundation of attaining perfection in the quality of living is basically health education. Too many people have not been taught to make the most of what they have to live with, too many impoverished lives, lives impaired by hunger or disease, or lives marked early for failure or disaster. It is his contention that too many men die of heart disease because they weren't able to control the factors which are conducive to such a disaster. Too many women die of unsuspected cancer because no one had the sense to develop a bit of information in school. Too many young people flounder about in the morass of ignorance about their sexual urges and controls, because some school faculty or school board hasn't got nerve enough to develop some decent and scientific instruction in this most compelling area. He pleads for school health education starting in kindergarten and going up through college with the presentation of an organized and appropriately graded segment of the curriculum. Public health education means doing the same thing on a community level using all means and





media possible to bring the message of cancer, or tuberculosis, or venereal disease and everything and anything else that bears upon the health of the people. He says the concept of health education is so simple and useful and practical in application and so fundamental to human achievement that one would think health education would be fully developed in every community. But it isn't. He says we take better care of hogs and cattle and probably dogs and cats than we do the general run of school children. We should spend money by the millions in some sections of the United States on children who are so hungry they can't read, or so full of hate or envy or hurt they can't think straight. In community after community in this country we haven't scratched the surface of health education.

It is difficult at first, for one such as I, and I'm sure such as most of you, to reconcile the necessity of government spending or government intervention as it were, with our own very strict view of free enterprise, yet as one speaker put it, "To survive is to cooperate."

Another interesting paper was presented by A. L. Chapman, M.D., director Bureau of Planning, Pennsylvania Department of Health entitled "Planning for Rural Health Services." Dr. Chapman pointed to the widening gap between current medical knowledge and the application of that knowledge. He states that where we once suffered from an abundance of ignorance we are now comfortably distended by a plethora of knowledge. The continuing expenditure of more than a billion dollars a year for medical

research will only serve to widen the gap; thus planning the wise use of health personnel and facilities is essential, but increasing the supply of qualified manpower is of equal importance.

Despite the promise of wonderful things to come, of artificial hearts, modified genes and organ transplants, the everyday medical problems of rural areas still remain the same. Such questions as these are being asked:

1. How can rural residents be motivated to seek periodic health examinations and how, if such examinations are desired, can they be provided?
2. How can the services of rural physicians be extended by the planned use of para medical personnel?
3. How can facilities and services of community hospitals be upgraded so that they can better serve the complex health needs of rural residents?

Although in recent years a number of new medical schools have opened, the increasing number of graduates will merely slow down the rate of decline in the physician population ratio. The tendency for young physicians to specialize penalizes rural areas, for specialists are attracted to urban areas. Of the 7,500 graduates each year only about 18% plan to go into family practice as opposed to 75% in 1940. A study done in New York state elicited five reasons why young physicians avoided rural practice:

1. Hours of work.
2. Inadequate time to study, attending meetings, etc.
3. Can't obtain hospital appointments.

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4. Miss emotional stimulus of other physicians in a hospital or clinic setting.
5. They and their families miss the cultural opportunities of large cities.

He felt these are big problems and merit big solutions. He listed nine goals — I will mention several.

1. Farm incomes must be raised.
2. Educational opportunities and teaching facilities for young people in rural communities must be made equal to those available in cities.
3. Regional planning, comprehensive health care.
4. Periodic screening examinations for early detection of chronic disease to lighten the burden placed on overworked physician.

A more sophisticated motivated public health education needs to be devised with roots in our schools.

Family planning — for more, fewer or simply better spaced children.

Expanded training facilities. Hospitals without physician and nurses and labs without technicians contribute little to better health.

Good emergency care services.

These are Dr. Chapman's thoughts, we may not agree with all of them but they are certainly food for thought.

Some time was devoted to discussion of obtaining more family practitioners. There were no clear cut solutions of course and it seemed to be the consensus that this trend would not be reversed until the medical schools reversed their whole policy of training specialists and reverted back to the training of general practitioners. It was also felt that giving prestige to family practice would help some but the fact remains and the conclusions are obvious that this trend will not be reversed and that the existing shortages and maldistribution of health manpower will persist regardless of the present strenuous efforts to expand the medical schools and other related educational institutions. As Dr. Harold Margulies of Washington, D. C. pointed out, our real concern must be with health services, traditionally those provided by skilled people. Medical practitioners in the United States now have an average of at least nine allied health workers on whom they depend. In the ten years from 1955 to 1965 the physicians in private practice increased 12% while physician directed services increased 81%. Of the 3.5 million health workers in the country about 300,000 are physicians and over 600,000 are registered nurses (in addition there are over 600,000 qualified nurses

who are not active, one-half of whom have kept their licenses valid). The health care system depends on more than manpower. It makes extensive use of transportation, telephones and other communication media, hospitals, nursing homes, etc.; thus it can be seen that in the scheme of things rural health care involves more than just the physician and many small communities can provide effective emergency care by using nurses, technicians, teachers with health skills or others who can be trained to perform simple, but critical services and the same community can use everything from a pool of private cars to well equipped ambulances.

Good or bad, there is strong encouragement in federal legislation for all facets of a coordinated approach to area wide planned health care.

It is apparent to all that many of these problems are not really our problems. I think our standard of living is as high as many and higher than most, yet I am sure that there is much we can do to improve the health of our people. We know that misery does exist. We have privation and disease, we have hunger, we have school dropouts, we have alcoholism. Narcotics use is creeping out here, we have venereal disease and we have migrant workers. Our physician-population ratio is among the lowest in the nation while our land area is among the greatest.

While many of the speakers at the national meeting, I felt, had a tendency to envisage a utopia, nevertheless the points made were basically true. One theme that kept continually running through the meeting was health education. Speaker after speaker emphasized the benefits derived from health education. Are we really doing enough in this area? I think we talk to a PTA once in a while and feel that we have done our share. I would like to see a survey of the curricula in our schools to see how many of them do provide health education and if lacking we should be in a position to help establish a program. I think the physicians of our state should provide an active speakers bureau and I think we should use everything in our power to barrage our people with health advice on local levels, especially in the schools, such as the dangers of smoking, alcoholism, quackery; necessity of Pap smears, self examination of breasts, necessity for exercise, immunization programs, diabetes detection and anything else which will aid in the diagnosis and prevention of chronic disease. Along with this we are in a process of surveying the immunization level of the adult

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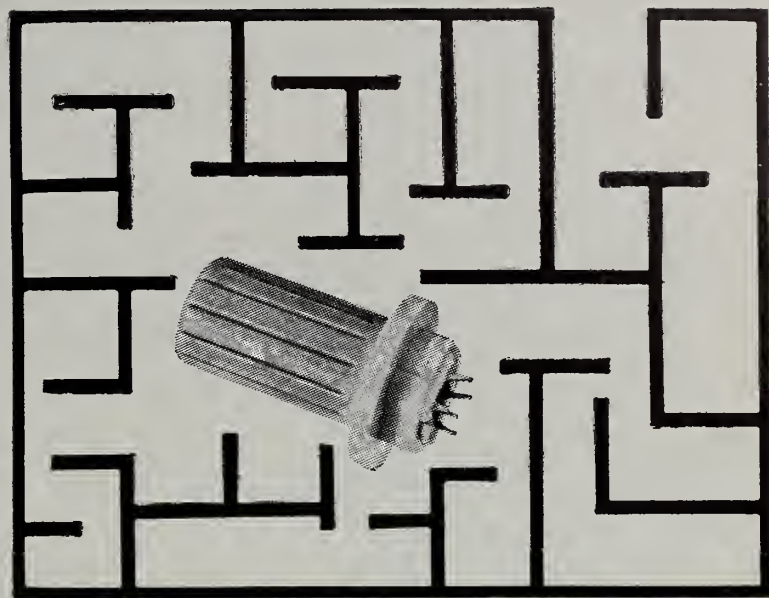
population and hope to start a program of adult tetanus immunization in the near future.

I think we should take an active part in rural first aid training, as recommended by the Council on Rural Health, knowing that in some parts of our state many areas are without physicians or have only a single physician.

I think we should stress very actively farm safety programs. I personally was sorry to see the slow moving vehicle emblem bill killed in committee.

I would like to see more active participation in our high schools on vocation day. I think we are falling down in this field. Most schools have a vocation day, to which many of us could appear, and really sell the students on the practice of medicine. We read about taking science classes through hospital or medical schools, I think we could engender interest this way and while we are on the subject of schools I would like to see a closer relationship between the general practitioner and the students at the medical schools.

I think these are some of the ways that we can help the people of this state. Thank you for listening to me and if there are questions I would be happy to try to answer them.



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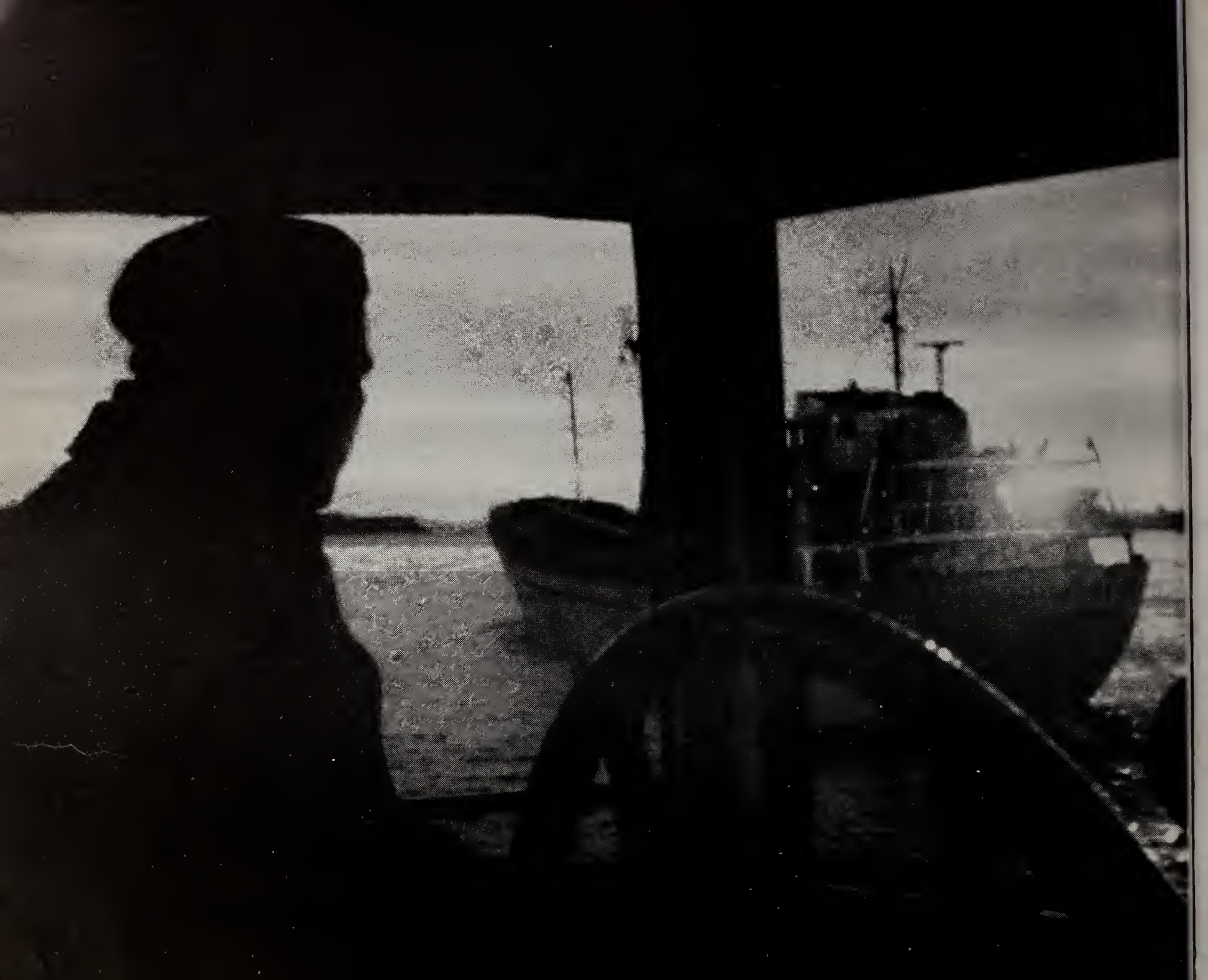
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Ethics

## FATHER'S SUIT FOR BIRTH INJURIES IS MALPRACTICE SUIT

A trial court erred in denying a hospital's motion to dismiss a father's suit for damages for breach of contract resulting from the hospital's alleged negligence in connection with the birth of his child. The suit was barred by 3-year malpractice statute of limitations, a New York intermediate appellate court ruled. Although the father's suit was labeled "breach of contract," it was one to recover for loss of services and medical expenses and was, therefore, governed by the malpractice statute of limitations. The appellate court entered an order dismissing the father's suit.

\* \* \*

## NO NEGLIGENCE IN TREATMENT OF ANKLE FRACTURE

An Illinois trial court directed a verdict for three physicians and a hospital in a patient's suit for damages caused by their allegedly negligent treatment of a comminuted, compound fracture of his right ankle. Two closed reductions were performed. A triple arthrodesis subsequently was necessary. The patient is now unable to move his ankle from side to side.

\* \* \*

## ENLISTED MAN'S MALPRACTICE SUIT AGAINST ARMY PHYSICIAN BARRED

An enlisted man could not maintain a suit for damages against an Army physician for injuries allegedly caused by his having left nondissolving sutures in the patient's abdomen during an operation in an Army hospital, the U. S. Court of Appeals for the Third Circuit ruled. The trial court's dismissal of the suit was affirmed.

Information provided by the Law Dept., A.M.A., 535 North Dearborn St., Chicago, Ill.

Although the Army medical corps performs mostly a function of service, it does have a command function over all officers and enlisted men who are admitted to its facilities during the period of admission. The physician performed the operation in the line of duty. It is not yet within the American legal concept that one soldier may sue another for negligent acts done in the line of duty. An undisciplined army is a mob, and it would weaken discipline to let a soldier civilly litigate with others in the army over the performance of another man's army duty. Congress has provided another, reasonably adequate way to compensate those injured in the line of Army duty.

\* \* \*

## INDICATION OF MEDICAL SOCIETY AFFILIATION ON PROFESSIONAL CARDS

The physician should limit the use of statements of qualification and honors on letter and billheads and professional cards to the simple dignified abbreviation, "M.D." or the statement "Doctor of Medicine." To do more smacks of self-laudation, borders on solicitation of patients, and tends to reduce the degree and title "Doctor of Medicine" to secondary importance. While it cannot be concluded that it is unethical to use specialty designations in this manner, it can be said that the practice is not in the best of taste or in the best interest of the profession.

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## DISTRIBUTION OF REPRINTS OF ARTICLES

One normally would not take it upon himself to mail reprints indiscriminately without sufficient reason! What constitutes a sufficient

(Continued on Page 65)





# 20 Years Ago

## ... IN THE JOURNAL

TWENTY YEARS AGO IN THE SOUTH DAKOTA JOURNAL OF  
MEDICINE AND PHARMACY — JULY, 1949

### THE GROUP INSURANCE PLAN OF THE S. D. STATE MEDICAL ASSOCIATION

R. G. Mayer, M.D.

Not enough physicians have taken advantage of the Disability Insurance Plan for members of the South Dakota State Medical Association, which became operative on December 1, 1948. This group insurance was not approved by the Council without long study and thorough consideration.

About five years ago there was presented to our Association a special plan of disability insurance underwritten by the Commercial Casualty Company, whereby, through group buying power, there were offered benefits far broader than were possible under individual policies. Special committees were appointed to investigate the plan from various angles and final approval given by the Council in September, 1948.

Literature was sent to all members by the Company's agent office and the plan became operative on December 1st. Advertisements and announcements regarding it have been printed in our Journal. However, only approximately 40% of the eligible membership have enrolled.

\* \* \*

### A.M.A. CONVENTION

The AMA's Annual convention in Atlantic City in June is now history but the repercussions will be heard for some time to come. The biggest news story of the affair was the "muzzling" of Editor Morris Fishbein.

Although the action, introduced by the Board of Trustees, did not bring about a ringing battle on the floor of the House, the debate was there in the minds of those present.

The public press, in reporting the incident, ranged from all-out condemnation of the AMA for betraying its spokesman to a pat on the back for dropping ultra-conservative leadership.

Many AMA members feel the way an editor of Time Magazine expressed it. "Nobody was fooled — least of all the liberals who lean

toward just a little harmless bit of 'socialization' in medicine — into thinking that Fishbein's firing meant a change in fundamental AMA attitude."

Others feel that the AMA will now become regarded as an Association rather than a one man show. These individuals, in the main, give Dr. Fishbein credit for being a top-flight organizer, a talented writer and speaker, a brilliant leader, and an excellent politician, but at the same time they feel that no one man should be confused with the whole Association. Whether or not this change of public regard will come about is a moot question. Perhaps there is another "strong man" in the offing who will become known as AMA spokesman.

Whatever the outcome of the action may be, which only time will tell, it is obvious that a great personality has been "bumped."

The AMA can lead the way to a better understanding of fundamental democratic principles or it can flounder for lack of positive leadership.

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### BROOKINGS GIRL AAPS ESSAY WINNER

Delores Tykhus, 17 year old graduate of Brookings High School, was named first place winner in the national Essay contest sponsored by the American Association of Physicians and Surgeons. First place selection awarded her a \$100.00 prize.

The essay was entitled "Why the Private Practice of Medicine Furnishes us With the Finest Possible Medicare" and appeared in the June issue of the South Dakota Journal of Medicine and Pharmacy. This essay also won first place in the Third District Medical Society's Contest.

\* \* \*

### S. D. HAS NEW HEALTH COUNCIL

Gov. George T. Mickelson has created a public health advisory council to replace the former state board of health. He also appointed Dr. G. J. Van Heuvelen, Pierre, as state health officer for a five-year term.



# Path CAPsule

Submitted by the College of American Pathology in connection with the South Dakota Society of Pathologists.

## HB ELECTROPHORESIS

The differential diagnosis of the various abnormal hemoglobin syndromes can be very frustrating. Hemoglobin electrophoresis, when used simultaneously or sequentially with other laboratory tests and in consort with the clinical history, is of practical value in diagnosing the hemoglobinopathies.

The synthesis of hemoglobin is genetically controlled and the presence of abnormal hemoglobin in the blood is often associated with functional, physical and morphologic abnormalities in the erythrocyte as well as definite clinical manifestations, such as hemolytic anemia. Laboratory tests which supplement hemoglobin electrophoresis include tests for sickling of red cells, susceptibility to alkali denaturation, osmotic fragility, reticulocyte count and a careful study of the morphology of the peripheral smear.

The following hemoglobins are of chief concern in diagnosing the more common hemoglobinopathies:

A Normal adult hemoglobin. It is composed of two fractions, A (95%) and A<sub>2</sub> (5%).

A<sub>2</sub> This hemoglobin is of chief concern in diagnosing the thalassemic syndromes. In these conditions there are three abnormalities of hemoglobin synthesis which are present in variable degrees: the presence of hemoglobin F, suppression of hemoglobin A, and a proportionate increase in A<sub>2</sub>.

F This hemoglobin (Fetal Hemoglobin) predominates in fetal life and normally has disappeared from the blood at 1 year of age. Its property of resistance to alkali denaturation, rather than electrophoresis, is the basis for its quantitation.

S During electrophoresis, this hemoglobin (Sickle Cell Hemoglobin) moves more

slowly toward the anode than does Hb A. When present in the blood, the red cells change shape (sickle) when the O<sub>2</sub> tension is low. It may be present in a homozygous manner (SS = sickle cell disease) or in a variety of heterozygous conditions (AS sickle cell trait).

C Electrophoretically this is a slow moving hemoglobin and may be inherited in combination with hemoglobin S, thalassemia or in the homozygous state.

As previously mentioned, the diagnosis of the hemoglobinopathies requires the correlation of several laboratory tests with familial and clinical history. A particular case may defy categorization using the more practical laboratory tests and more sophisticated chromatographic and immunologic techniques will have to be employed. The following table lists some laboratory features of the more common hemoglobinopathies.

Disease	Type of Hb	Ane- mia	Sick- ling	% Target Cells	Reticu- locytosis	Osmotic- fragility
Sickle Cell anemia	S+S	+++	+++	5-30%	+	—
Sickle Cell trait	A+S	±	+	0-5%	N	N
Sickle Cell C disease	S+C	±	+	20-80%	+	—
Homozygous C disease	C+C	+	—	40-90%	N or +	—
Heterozygous C disease (trait)	A+C	—	—	0-30%	N	N
Thalassemia Major	A+F+A <sub>2</sub>	+++	—	10-30%	+	—
Thalassemia Minor	A+F+A <sub>2</sub>	+	—	0-10%	N or +	—
Thalassemia Sickle Cell disease	A+S+F+A <sub>2</sub>	++	+	20-30%	+	—
Thalassemia C disease	A+C+F	±	—	20-60%	+	—

\* \* \*

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## The State Medical Journal — Who Needs It?

J. F. Barlow, M.D.

Being now well into our 22nd year of continuous publication it is perhaps appropriate to pause and reconsider our purposes and the extent to which they are being accomplished. Quite obviously, this publication fulfills a purpose in distributing news about social, legislative and economic trends as they affect the State Medical Association. We have a clearly defined function as reporter for the business activities of the Association. However, is there a need for medical articles? Aren't there enough medical journals already? How can a small state journal have any educational benefit compared to national publications with large staffs and widespread circulations?

A major problem in American medicine today is that of delayed or inadequate dissemination of knowledge to the community physician. Medical knowledge is now undergoing an explosive, geometric growth under the stimulus of 20th century scientific inquiry. There may be too often a lack of appreciation and understanding on the part of the busy doctor of the availability and applicability of modern diagnostic and therapeutic techniques within his own community or state. There are several reasons for this. One is that much of the material being printed is not directly applicable to clinical medicine. However, some of it is. Unfortunately, it is difficult to cull the practical information from the maze of material being printed. Certain review articles, postgraduate programs by nearby

universities, and correspondence courses have tried with varying success to solve the problem. These methods have to some degree kept the busy practitioner abreast despite the demands of his practice.

If all of the above is true, what good is a local medical journal? It cannot hope to publish series of cases as large as those in the major referral centers. Contributors to our local journal do not have federal funds and sophisticated equipment for intricate studies. Be this as it may, it seems that each community needs stimulation from within. We believe too easily that certain diagnoses and sophisticated procedures can only be done in highly specialized centers. Indeed, they themselves would have us think this. We are led too easily to believe that many entities are rare and exotic and not seen in the general community. The march of medicine passes us by. In fact, these are the criticisms made of us by academicians. I don't believe it! It is always surprising what can be done in community hospitals. Many of the advanced methods of diagnosis and treatment are not only capable of being instituted but are even employed now in smaller hospitals. One of the functions of a state or regional medical journal is to make these newer techniques already available in the local area more widely publicized and understood to the busy practitioner. The practitioner might be surprised at the new techniques in chemistry, radiology, surgery, immunohematology and

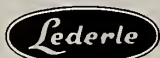


microbiology which are available to him on a local level. He will soon realize what procedures are useful to him in managing his patient. He will be able to serve his patients better and gain greater satisfaction from and pride in his practice. What is more, he can by his own experience generate enthusiasm and intellectually stimulate his colleagues. This is what makes an area progress medically. Our journal should be the official publication that represents this spirit of progress and attitude. Without the individual approach and interest from within, there will be little local medical progress. In fact, without this pride and activism on a local level, how can the everyday practice of medicine advance? What can better reflect this progress than a publication originating from our association?

Another important function of this journal is to promote closer relations between the medical school and the practicing community physician. Articles depicting investigations and research being carried out by both the basic and clinical faculty can give the community physician more insight into the functions and activities of the medical school. He may be interested in attending some of the lectures and courses which are intended for continuing education and in applications of basic science to clinical situations. In the future the purposes and functions of the Medical Association and Medical School must become united if we are to meet the demands of medical care. The South Dakota Medical Journal will reflect this philosophy.

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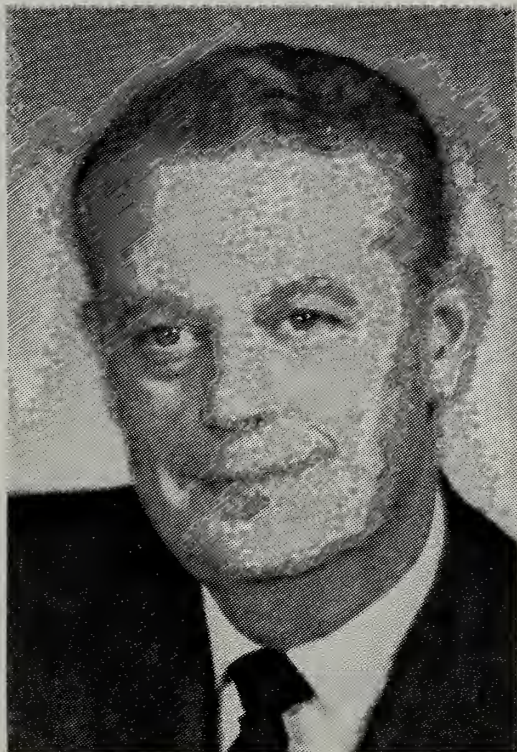
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# P R E S I D E N T ' S P A G E



It is indeed a great honor to take over the reins of the presidency of the South Dakota Medical Association for 1969-1970. I wish to express my appreciation to the membership of the association for their confidence. It will be difficult to follow in the footsteps of my predecessors who have worked tirelessly during the past several difficult years, which were some of the most trying ones for the medical profession.

We will continue to be faced with problems that require organized thought and effort on the part of the physicians. It is doubtful that we can look forward to a period of less outside pressures and influences in the immediate future.

Each year our Medical Association has certain priority problems and projects which need special attention and a special organized effort.

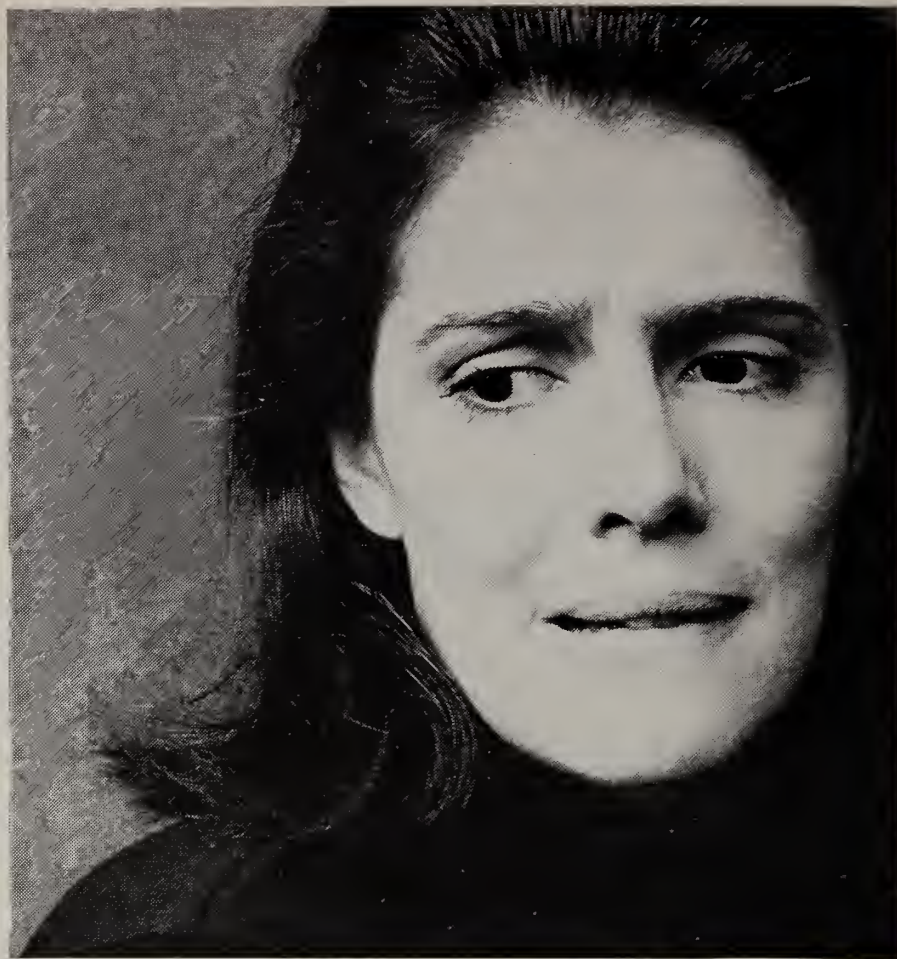
This year the problem of medical manpower within our state needs special study and special emphasis. Under this high priority item, the State Association must lend its fullest support to the University of South Dakota Medical School. A special ad hoc committee has been formed and it is our hope that all members of our association will aid this group and use this committee as a central liaison unit handling problems common to the Medical School and the individual physicians, districts, commissions, and council of the Medical Association.

Each district society will be urged to form a special committee to investigate the problems of medical manpower in their own area. These committees in turn will furnish information and suggestions to the State Medical Association, Regional Medical Planning, and Comprehensive Health Planning. We, physicians, must find an answer to the problems of the MD shortage in South Dakota.

A special appeal is being made to each physician in South Dakota to become active in the affairs of his district and his state association, so that we can tackle the problems that affect all of us. There are jobs that cannot be delegated to a certain few. If we do not all take an active part in evaluating and planning for the future, it is guaranteed that we will lose by default!

Robert H. Quinn, M.D.  
President





# The Fortunate One.

Her urinary tract infection reveals itself through pain and discomfort.

While the pain and discomfort of a G.U. infection are anything but pleasant, the patient may be luckier than she realizes. That burning sensation (and/or frequency, urgency, dysuria) is a usually reliable sign of a urinary tract infection. And it's her good fortune that her infection won't go undetected...or untreated.

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Before prescribing, please consult complete product information, a summary of which appears on opposite page.

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# Azo for the pain

## Gantanol<sup>®</sup>

(sulfamethoxazole)

## for the pathogens

Before prescribing, please consult complete product information, a summary of which follows:

**Indications:** Urinary tract infections with associated pain or discomfort when due to susceptible organisms; prophylactically in urologic surgery, catheterization and instrumentation.

**Contraindicated** in sulfonamide-sensitive patients, pregnant females at term, premature infants, newborn infants during the first three months of life, glomerular nephritis, severe hepatitis, uremia and pyelonephritis of pregnancy with gastrointestinal disturbances.

**Warnings:** Use only after critical appraisal in patients with liver damage, renal damage, urinary obstruction or blood dyscrasias. If toxic or hypersensitivity reactions or blood dyscrasias occur, discontinue therapy. In closely intermittent or prolonged therapy, blood counts and liver and kidney function tests should be performed.

**Precautions:** Observe usual sulfonamide therapy precautions including maintenance of an adequate fluid intake. Use with caution in patients with histories of allergies and/or asthma. Patients with impaired renal function should be followed closely since renal impairment may cause excessive drug accumulation. Occasional failures may occur due to resistant microorganisms. Not effective in virus and rickettsial infections.

**Adverse Reactions:** Headache, nausea, vomiting, urticaria, diarrhea, hepatitis, pancreatitis, blood dyscrasias, neuropathy, drug fever, skin rash, Stevens-Johnson syndrome, injection of the conjunctiva and sclera, petechiae, purpura, hematuria or crystalluria may occur, in which case the dosage should be decreased or the drug withdrawn.

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**How Supplied:** Tablets, bottles of 50.



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## Letters to the Editor

Dear Sirs:

I wish to express my thanks for your contribution toward my participating in the International Science Fair at Fort Worth, Texas. That experience is the high light of my high-school years.

Meeting students from other nations and from many places in the United States and discussing their outstanding projects was interesting.

Yours truly,  
Roberta Stevenson  
Vermillion High School

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UNIVERSITY OF SOUTH DAKOTA

April 30, 1969

John T. Elston, M.D.  
President, South Dakota State Med. Ass'n  
P. O. Box 47  
Rapid City, South Dakota 57701

Dear Dr. Elston:

At the time of the Annual Student American Medical Association Medical School Banquet in Sioux Falls on April 12th a check in the amount of \$5,329.98 was presented to the School of Medicine. This was presented as a contribution from the American Medical Association Education and Research Foundation representing contributions of doctors to medical education in South Dakota. The presentation was made by Dr. Gerald Tracy of Watertown, Chairman of the Commission on Medical Services of the Medical Association.

On behalf of the School of Medicine, I would like to express our appreciation for this demonstration of support. Unrestricted contributions of this sort are vital to the daily operations of the School of Medicine and enable us to accomplish many things which are not possible with the funds supplied by state and federal agencies. I would wish you to convey to the physicians our appreciation and assure them that we will make responsible and effective use of these funds on behalf of better medical education in South Dakota.

Sincerely yours,  
George W. Knabe, Jr., M.D.  
Dean, School of Medicine





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**Contraindications:** Infections caused by nonsusceptible organisms; history of penicillin sensitivity.

**Warnings:** Acute anaphylaxis (may prove fatal unless promptly controlled) is rare but more frequent in patients with previous penicillin sensitivity, bronchial asthma or other allergies. Resuscitative (epinephrine, aminophylline, pressor amines) and supportive (antihistamines, methylprednisolone sodium succinate) drugs should be readily available. Other rare hypersensitivity reactions include nephropathy, hemolytic anemia, leucopenia and thrombocytopenia.

In suspected hypersensitivity, evaluation of renal and hematopoietic systems is recommended.

**Precautions:** In suspected staphylococcal infections, perform proper laboratory studies including sensitivity tests. If overgrowth of nonsusceptible organisms occurs (constant observation is essential), discontinue penicillin and take appropriate measures. Whenever allergic reactions occur, withdraw penicillin unless condition being treated is considered life threatening and amenable only to penicillin. Penicillin may delay or prevent appearance of primary syphilitic lesions. Gonorrhea patients suspected of concurrent syphilis should be tested serologically for at least 3 months. When lesions of primary syphilis are suspected, dark-field examination should precede use of penicillin. Treat beta-hemolytic streptococcal infections with full therapeutic dosage for at least 10 days to prevent rheumatic fever or glomerulonephritis. In staphylococcal infections, perform surgery as indicated.

**Adverse Reactions:** (Penicillin has significant index of sensitization): Skin rashes, ranging from maculopapular eruptions to exfoliative dermatitis; urticaria; serum sickness-like reactions, including chills, fever, edema, arthralgia and prostration. Severe and often fatal anaphylaxis has been reported (see "Warnings").

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# MEDICAL ASSOCIATION

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News Notes • Changes • Births • News

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## Pop's Proverb

Eat, drink and be merry,  
for tomorrow you may find  
out.

**Loyd Wagner, M.D.**, Sioux Falls, and **G. F. Tuohy, M.D.**, Sioux Falls, along with a five member medical teaching team from Texas conducted a cancer management symposium in Sioux Falls for the area doctors and nurses.

\* \* \*

Participants in the 1969 Annual Prosecutor and Law Enforcement Officers Conference in Pierre included **Karl Wegner, M.D.**, Vermillion; **Delwin Ohrt, M.D.**, Sioux Falls; and **Richard Schultz, M.D.**, Sioux Falls.

\* \* \*

**Dr. Robert Quinn** and **Dr. Ted Wrage** shared the platform with President Richard Nixon during his recent visit to Madison, South Dakota. The two physicians are trustees of the Karl Mundt Foundation.

**John S. Devick, M.D.**, Colton, presented a film on cancer in Lyons for the local junior and senior high FHA chapters.

\* \* \*

Members of the Vermillion PTA heard **Warren Jones, M.D.**, Sioux Falls, speak on the medical problems of drug abuse.

**YOUR  
CONTRIBUTION  
TO THE  
SOUTH DAKOTA  
MEDICAL SCHOOL  
ENDOWMENT  
FUND  
IS NEEDED**

**T. H. Sattler, M.D.**, Yankton, received the Clinical Professor of the Year award presented by the University of South Dakota medical students.

\* \* \*

The American Cancer Society, South Dakota Division announced the election of **Richard A. Kovarik, M.D.**, Rapid City, to its Board of Directors.

\* \* \*

**G. E. Tracy, M.D.**, Watertown, president of the South Dakota Heart Association, discussed coronary heart disease at a program in Huron in observance of National Hospital Week.

\* \* \*

Members attending the 13th Annual South Dakota Medical Assistants convention in Rapid City heard **H. Streeter Shining, M.D.** speak on "The Expanding Role of Para-medical Personnel" and **A. R. Hoffmann, M.D.** speak about his recent tour of duty in Vietnam.



**Bernard Herzog, M.D.**, who has practiced in Milbank for the past two years, has entered a surgical residency program in Yankton. He will also teach gross anatomy at the University of South Dakota.

\* \* \*

**Roscoe Dean, M.D.** spoke at the South Dakota Future Nurses convention held in Wessington Springs.

\* \* \*

The Eighth Annual Clinical Pathology Workshops were held at the School of Medicine on the campus of the

University of South Dakota in Vermillion on May 22 and 23.

There were approximately 98 technologists, pathologists, technicians, and laboratory assistants in attendance. States represented were Iowa, Minnesota, Montana, Nebraska, North Dakota, and South Dakota.

This program is sponsored jointly by the South Dakota State Medical Association, South Dakota Society of Pathologists, South Dakota Society of Medical Technologists, South Dakota Division

of the American Cancer Society, Board of Registry of Medical Technologists, and the School of Medicine of the University of South Dakota.

South Dakota physicians appearing on the program of the Clinical Pathology Workshop at the University of South Dakota included **Durward Lang, M.D.**, Sioux Falls, who spoke on "Routine Spinal Fluid Procedures" and **John F. Barlow, M.D.**, Sioux Falls, who spoke on "Basic Coagulation and Screening Tests for the Small Hospital."

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## QUALITY CARE — CHALLENGE TO MEDICINE

The medical profession is committed not only to the provision of **quality** in health care but to **equality** in providing health care services, a San Francisco surgeon told the 3rd National Congress on the Socio-Economics of Health Care, sponsored by the American Medical Association March 28 in Chicago.

Samuel R. Sherman, M.D., vice chairman, AMA Council on Legislative Activities, said: "The strength of the health care profession will be increased and continuing respect for it engendered if it engages in continuing self-evaluation and self-criticism and then forges ahead to greater accomplishments in terms of improved health and longevity for all persons, regardless of socio-economic status or ethnic origin."

It is just as important to uncover patterns of provider behavior which reflect insufficient use of less costly alternatives or which reveal less than adequate performance as to curtail those which reveal more than necessary and essential services, he said.

"Without such self and public assurances, the issues of costs of, and prices for, medical care will continue to plague all of us," he said.

Dr. Sherman pointed out that while a number of social, economic and cultural factors represent barriers to the provision of good medical

care, physicians can utilize a variety of techniques for assessing the effectiveness and appropriateness of medical care.

"If goals are properly directed to continuing medical education and to improvement in patient care, rather than to punitive measures, physician participation and involvement can and should be expected," he said.

Lack of initiative to improve on the part of the medical profession "can result in the imposition of controls from outside the profession," he stressed.

Dr. Sherman cited several evaluation techniques that involved local medical society participation, including society committees that review case records dealing with specific disease entities to determine whether physicians are actually applying current knowledge in the management of patient care.

Such evaluations can be useful in measuring the effectiveness of education programs and can also help program planners in developing further efforts, he noted.

He said that such techniques "can help to provide assurances to the public, as well as to the profession, that the quality of medical care is being maintained, and that improved patient care is the continuing objective of a profession committed to the rendering of the highest standards of care which scientific knowledge and current technology afford."





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## THE MONTH IN WASHINGTON

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Health, Education and Welfare plans to impose Blue Shield schedules for physicians under Medicaid and to limit payments to hospitals under Medicaid and Medicare drew strong responses from the American Medical Association and the American Hospital Association.

Dr. Dwight L. Wilbur, president of the AMA, urged in a letter to Robert H. Finch, HEW Secretary, that all segments of the health care field be consulted in effecting economies in government-paid health services.

"The American Medical Association is eager to make available to your office the composite experience and judgment of the nation's physicians, who are the principal providers of health care to all the people," Dr. Wilbur said. "The needs and problems of patients in all walks of life, at all income levels, come to their attention, in composite, more than a billion times a year.

"It has always been a principle of both the humanity and the professional code of the physician that no one shall ever be denied quality health care because of his inability to pay. The present concern is how this universal care can best be provided within a viable economic system and in the face of burgeoning demand for medical manpower, services, and facilities . . .

"The knowledge and judgment of the nation's physicians—as well as of the prepayment plans, health insurance industry, hospitals, the allied health professions, the actuaries and others — must be enlisted in your battle against the health-care portion of the inflation problem."

Dr. Wilbur wrote Finch following the HEW announcement that federal spending on the Medicaid-Medicare programs would be trimmed by \$328 million through imposing Medicaid fee

schedules based on prevailing Blue Shield rates, limiting mental illness benefits under Medicaid and cutting down hospital overhead allowances in Medicaid and Medicare.

"It is important to recognize that there are many variables in the circumstances of payment for medical and hospital services," Dr. Wilbur said. "Local needs and resources, the educational and motivational levels of the people, the economic conditions of the state and the community are among the reasons for the differences exhibited by the payment patterns of the Blue Shield plans and health-insurance companies.

"These circumstances must be the foundation for any policies involving cost and payments. No universal pattern — no matter how many variations it may try to provide — can be imposed on the thousands of localities without wreaking havoc and probably increasing inefficiency and costs."

Concerning the imposition of Blue Shield rates as fee schedules under Medicaid, Dr. Wilbur warned in an address before the American Society of International Medicine in Chicago that a later step "might be that of physicians in groups on salary and abandonment of the fee-for-service principle." He said that physicians, in combating such government efforts, must accept the major responsibility of keeping fees as moderate as possible.

The American Hospital Association protested in a letter to President Nixon against removal of the two percent overhead allowance for hospitals. Officially representing the AHA, Ray R. Eppert, Detroit, Mich., hospital trustee, said in a memorandum accompanying the letter to Nixon:

"The recent announcement of a reduction in Medicare reimbursement poses a serious threat



to institutional integrity and, therefore, to the ability of hospitals to serve the sick and injured of this nation. Hospitals have been repeatedly assured at the highest levels of government that Medicare changes would not be made without consultation with their designated representative, the American Hospital Association.

"The AHA has tried repeatedly but unsuccessfully to meet with Secretary Finch. It is incredible that the federal government would propose, without any consultation, removal of the two percent allowance which is a proper component of reasonable costs guaranteed under the law as passed by the Congress.

"The department apparently deemed it unnecessary to consult with the hospital field, and, as far as can be determined, made no serious study of the effect of the proposed reduction on hospitals. Payment of nothing but raw costs will lead . . . to the serious under-financing of our hospitals."

\* \* \*

Drug combinations became the target of the Senate Small Business Subcommittee's investigation of the prescription drug industry.

Medical school professors critical of drug combinations were called as witnesses in two days of hearings opening this phase of the drug industry probe which began nearly two years ago. It was not indicated when, or even whether, drug company representatives would have an opportunity to defend their combination products before the subcommittee.

Dr. Heinz F. Eichenwald, a National Academy of Science drug specialist, told the subcommittee that "misleading advertising" had lured "the gullible physician" into prescribing useless and sometimes dangerous drug combinations. He also said continued use of drug combinations "amounts to a strong indictment of the ability of many physicians to judge what is effective and what isn't."

Dr. Eichenwald, pediatrics chairman at the University of Texas Southwestern medical school in Dallas, and Dr. William M. M. Kirby, a medical professor at the University of Washington medical school in Seattle, testified on the opening day of hearings on combination drugs conducted by the subcommittee which is headed by Sen. Gaylord Nelson (D., Wis.).

The two physicians were among 30 drug experts who evaluated combination drugs for the

National Academy of Science. The experts' unanimous report said the combinations were useless and sometimes dangerous.

The report caused the U. S. Food and Drug Administration to serve notice April 2 that the 78 combination drugs studied by the scientists would be banned from the market unless drug makers could prove the Academy studies were wrong. Drug companies are fighting the FDA order as to many of the combinations that would be banned.

Eichenwald and Kirby both testified doctors are widely prescribing the combinations despite numerous warnings of their potential danger.

Eichenwald said drug firms point to the admittedly widespread use of combinations to state that physicians must therefore have demanded them.

"The opposite is true," Eichenwald's prepared testimony said. "The demand was created by misleading advertising."

In another action, Nelson, D., Wis., urged the FDA to restrict cyclamate-sweetened products to a prescription-only basis.

In a letter to FDA, Nelson said "tens of millions of children and adults across the nation are unwittingly being exposed to potentially serious health hazards by the unnecessary consumption of cyclamate-sweetened soft drinks, cereals, desserts and 'sugar' coated pills."

He added "increasing scientific evidence indicates that cyclamates can cause chromosome breakdown, the birth of undersized offspring in animals, interference with effectiveness of certain antibiotics, persistent diarrhea, liver diseases, skin irritation and eruption, difficulty with blood clotting and high blood pressure."

Cyclamate was originally developed as a sugar substitute for diabetics and others forced to restrict their intake of sweets. The FDA recently proposed regulations on labelling and ingredient content for cyclamate, often used now as a general substitute for sugar.

\* \* \*

The Joint Commission on Mental Health of Children is recommending a broad program aimed at bettering the health of the nation's children and youths at an estimated cost of \$6 billion to \$10 billion a year.

The Commission recently disclosed its recommendations to the annual meeting of the American Psychiatric Association in advance of its report to Congress. The 54-member commission



— which has completed a three-year, \$1.5 million study — was established by Congress in 1965.

Sen. Abraham A. Ribicoff (D., Conn.), who introduced the legislation to set up the committee, said he would promptly introduce legislation to carry out the commission's recommendations.

The recommendations included national health insurance for persons up to 21 or 25 years old; family planning and birth control; prenatal care; pediatric care for children up to age of three, and physical and mental health services for older children.

Other recommendations:

—Federal funding for about 100 child development councils to help guide families through the confusion of Government agencies in order to insure diagnostic, treatment and preventive services for children.

—Appointment of a Presidential council of advisers on children and youth, similar in position and prestige to the Council of Economic Advisers.

—Establishment of state commissions and local authorities on child care.

—Federal financing of about 10 evaluation centers to consider the working of the child development councils.

—Publicly supported day care available for all children.

—Federal funds for training child health and welfare personnel.

—Tax incentives to induce people to service in slum areas.

Dr. Reginald S. Louri, Washington, D. C., psychiatrist, is chairman of the joint commission.

Nixon, in a Feb. 19 message to Congress, said:

“So crucial is the matter of early growth that we must make a national commitment to providing all American children an opportunity for healthful and stimulating development covering the first five years of life.”

\* \* \*

The chairman of the AMA Committee on Alcoholism and Drug Dependence estimated that five percent of U. S. college students have tried LSD and 20 percent of high school and college-age youths have experimented with marijuana and other hallucinogenic drugs.

The chairman, Dr. Henry Brill of West Brentwood, Long Island, N. Y., made the estimate in testimony before the Senate Health Subcommittee.

“And,” he added, “although no accurate count has been made, there are signs that the abuse of heroin and other so-called ‘hard’ narcotics is spreading into the suburbs.”

Dr. Brill told the subcommittee that the nation's physicians increasingly “are being called upon to treat patients with drug problems, and to give counsel to anxious and bewildered parents who are discovering that ‘it can happen’ to their sons and daughters.”

He emphasized the need for more research in the narcotics field.

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(Continued from Page 39)

reason is impossible to define categorically. Certainly it would not be ethical for a physician to mail reprints if his intent was to solicit patients directly or indirectly or to attempt to bring undue attention to himself. The practice, therefore, cannot be recommended. This is not to say that the author of a medical article may not honor requests for copies of his article.

\* \* \*

#### USE OF PHYSICIAN'S NAME IN NEWS STORY

The Principles of Medical Ethics prohibit the solicitation of patients. They do not prohibit the reporting of proper news. When an accident or event occurs which is newsworthy and if the facts surrounding it are published, there would be no way, and seldom any reason, to stop a newspaper from reporting as a matter of fact that the victim was taken to the offices of a named doctor for treatment. Should the newspaper so report, the doctor should not be criticized because the newspaper made this factual observation.

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#### NEURAL SCIENCE SEMINAR

A Seminar in Neurology, Neuroradiology and Neurosurgery will be held at the Minneapolis Veterans Administration Hospital on August 6, 7, and 8. Recent advances in these fields will be reviewed. Physicians and other medical personnel are invited to attend. Cost of the Seminar will be borne by the Veterans Administration Hospital, Minneapolis, Minnesota. Rooms have been reserved for visiting participants at a minimal charge at the Sheraton Motor Inn, on Highway 494. A social program as well as the lectures by an outstanding faculty is being planned. You may register by writing to:

Dr. Milton Alter,  
Chief of Neurology Service  
Veterans Administration Hospital  
Minneapolis, Minnesota



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THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION  
Organized 1882 711 North Lake Avenue  
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A. P. Reding, M.D.	
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John T. Elston, M.D.	

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# Transactions of the

## South Dakota State Medical Association

### Eighty-Eighth Annual Session

### June 7, 8, 9, 10, 1969

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## REPORT OF THE BUDGET AND AUDIT COMMITTEE

The meeting was called to order at 9:00 A.M. at the Guest House Motel in Watertown, on June 9, 1969. Present were Drs. B. J. Begley, A. P. Reding and E. A. Pasek. Dr. Tom Mead of Spearfish also attended the meeting.

A discussion of the CPA Audit was held. Dr. Begley moved that the CPA Audit be accepted. The motion was seconded by Dr. Pasek and carried.

Dr. Begley suggested that a tax escalation clause be included in the lease agreements for the Building owned by the South Dakota State Medical Association. A discussion of the proposed dues increase was held, but no further recommendations were made.

The meeting adjourned at 9:45 A.M.

## FIRST COUNCIL MEETING

Watertown, South Dakota  
Saturday, June 7, 1969

The meeting was called to order by E. T. Lietzke, M.D., Chairman of the Council. Those present for roll call were Doctors John T. Elston, R. H. Quinn, J. A. Muggly, A. P. Reding, G. E. Tracy, John J. Stransky, W. R. Taylor, G. Robert Bartron, Bruce Lushbough, C. L. Swanson, Fred Leigh, Harvard Lewis, E. T. Lietzke, Clark Johnson, C. E. Tesar, H. E. Lowe, H. H. Brauer, J. B. Gregg and B. J. Begley. Mr. Warren May, attorney for the Association, was also in attendance.

Dr. Reding moved that the reading of the minutes of the last meeting be dispensed with inasmuch as they have been distributed to the members. The motion was seconded by Dr. Muggly and carried.

Dr. Swanson moved that Dr. Fred Leigh be named Councilor from the Huron District. The motion was seconded by Dr. Bartron and carried.

No reports were received from the Commission on Medical Service, the Commission on Communications, the Commission on Internal Affairs, the Commission on Scientific Medicine and the Commission on Liaison with Allied Organizations.

Dr. J. B. Gregg, chairman of the Commission on Legislation and Governmental Relations submitted a written report.

## REPORT TO THE COUNCIL FROM THE COMMISSION ON LEGISLATION AND GOVERNMENTAL RELATIONS

Since the last meeting of the Council there has been no formal meeting of this Commission. The following are submitted for the information of the Council and possible action:

1. On May 10, 1969 there was held a meeting in Sioux Falls to discuss the stand of the South Dakota State Medical Association in regard to the Medical School at the University of South Dakota. From this meeting came a resolution which will be presented to the House of Delegates from the South Dakota State Medical Association. The Chairman of this Commission attended this meeting representing this Commission.
2. The Chairman of this Commission makes the following recommendations to the South Dakota State Medical Association:
  - A. During the session of the South Dakota Legislature there should be closer liaison between the paid lobbyist(s) for this Society and the Commission on Medical Legislation. This might wisely include at least a weekly report to the Chairman of the Commission or his designee, attendance for a definite interval at the Legislature by one or more members of this Commission, and definite communication to at least the Chairman of the Commission prior to the time that the South Dakota State Medical Association is definitely committed to a stand on a legislative matter.
  - B. It has been suggested by the Executive Secretary of the South Dakota State Medical Association that this Association should consider having a luncheon for the legislators this coming year. I feel that this suggestion has definite merit and should be considered seriously by the Association.

Respectfully submitted,  
John B. Gregg, M.D.  
Chairman  
Commission on Legislation  
and Governmental Relations

Dr. Lushbough moved that the report be accepted, but that the South Dakota State Medical Association not hold a luncheon for the legislators during the next session. The motion was seconded by Dr. Johnson and carried.

Dr. Stransky reviewed the report of the Ad Hoc Committee which studied Dr. Charbonneau's complaint. Dr. Tracy moved that the Council accept the



report of the Ad Hoc Committee and that the recommendations therein be implemented immediately and that copies of the report be sent to Dr. Charbonneau, the Blue Shield Board, the State Utilization and Review Committee, the Huron District, the Huron District Utilization and Review Committee, and the South Dakota State Board of Medical and Osteopathic Examiners. The motion was seconded by Dr. Taylor and carried.

Dr. Quinn moved that the Council of the South Dakota State Medical Association recommend that we continue the status quo insofar as Blue Shield and the Medical Association's relationship is concerned and that the Council back Mr. Erickson, both as the Executive Director of Blue Shield and the Executive Secretary of the South Dakota State Medical Association. The Council also recommends that this action be presented to the House of Delegates at their meeting on June 9, 1969. The motion was seconded by Dr. Elston and carried.

Mr. Erickson reviewed a request from the Nebraska-South Dakota Regional Medical Program for names of physicians who could serve on the Regional Planning Committee. Dr. Tracy moved that Dr. Clark Johnson and Dr. John Elston be suggested as nominees for the Regional Planning Committee. The motion was seconded by Dr. Quinn and carried.

The Council considered a request for nominees to serve on the Board of Examiners for Nursing Home Administrators. The Council moved that the names of Roscoe Dean, M.D., R. E. Van Demark, M.D., and A. P. Reding, M.D. be submitted as possible nominees. The motion was seconded by Dr. Taylor and carried.

Mr. Erickson read a report submitted by James P. Steele, M.D., regarding the South Dakota Health Research Institute for the Council's information.

#### **PROGRESS REPORT: SOUTH DAKOTA HEALTH RESEARCH INSTITUTE**

In a nutshell — nothing. There has been no work and progress since the last report. The new Secretary of HEW has not seen fit to appoint an Assistant Secretary for Health and Scientific Affairs. Therefore, all grants, contracts, etc. have come to a grinding halt and will probably remain this way until sometime late in the fall.

All bills are paid. All proper reports to the Secretary of State and Federal Bureau of Internal Revenue have been made.

The Council considered a letter from the Medical Assistants Society requesting approval of names submitted by that Society or suggesting other physicians names to serve on the Advisory Committee to the Medical Assistants Society. Dr. Lushbough moved that the Council approve the names suggested by the Medical Assistants Society. The motion was seconded by Dr. Swanson and carried.

Dr. Gregg stated the possibility of revisions in the Optometric law being introduced during the next legislative session for the Council's information.

Dr. Gregg briefly discussed the report of the Governor's Blue Ribbon Committee.

Dr. Elston moved that the Council recommend to the Commission on Scientific Medicine that this Commission undertake a survey to determine the drug problem in South Dakota through the State Health Department; and suggest that the Health Department contact the Division of Criminal Investigation, law enforcement divisions, school officials, and any other agency involved in drug abuse problems. The Commission should then obtain the information, make an evaluation, and the Association can then determine if it should take any action in the drug abuse area. The motion was seconded by Dr. Stransky and carried.

Dr. Leigh moved that the Council commend Dr. Bartron for his efforts in obtaining appropriations for the Medical School. The motion was seconded by Dr. Reding and carried.

Dr. Reding reported that the Budget and Audit Committee had met and examined the CPA Audit. He moved that the Council accept the audit. The motion was seconded by Dr. Bartron and carried. The meeting adjourned at noon.

#### **SECOND COUNCIL MEETING Watertown, South Dakota Sunday, June 8, 1969**

The meeting was called to order by E. T. Lietzke, M.D., Chairman of the Council. Those members present for roll call were Drs. John T. Elston, R. H. Quinn, J. A. Muggly, A. P. Reding, John J. Stransky, W. R. Taylor, G. Robert Bartron, Bruce Lushbough, Fred Leigh, Harvard Lewis, E. T. Lietzke, Clark Johnson, and H. E. Lowe. Commission Chairman G. E. Tracy, M.D. was also in attendance.

Dr. Leigh moved to dispense with the reading of the minutes of the last meeting inasmuch as they will be published. The motion was seconded by Dr. Muggly and carried.

Mr. Erickson informed the Council that the State Association has purchased two subscriptions of JAMA for the Medical School.

Dr. Lietzke introduced Dr. Fred Leigh as the new Councilor from the Huron District. The Council noted that Doctors Bruce Lushbough, Harvard Lewis and E. T. Lietzke were re-elected Councilors from their respective districts.

Nominations were in order for Chairman of the Council. Dr. Johnson nominated Dr. W. R. Taylor for Chairman of the Council. The motion was seconded by Dr. Reding. Dr. Tracy moved that nominations cease and that a unanimous ballot be cast for Dr. Taylor. The motion was seconded by Dr. Bartron and carried.

Dr. G. Robert Bartron moved that Dr. G. E. Tracy be named Councilor from the Watertown District inasmuch as Dr. Bartron had been elected Vice President of the Association. The motion was seconded by Dr. Stransky and carried.

Mr. Erickson reviewed the list of AMA Councils and Committees and requested that nominations be submitted to fill the vacancies on such Councils and Committees. Dr. Reding nominated Dr. G. E. Tracy for a position on the Committee on Medicine and Religion. The motion was seconded by Dr. Muggly and carried.

Dr. Stransky nominated Dr. G. Robert Bartron for a position on the Council on Legislative Activities. The motion was seconded by Dr. Lietzke and carried. Dr. Lushbough nominated Dr. R. B. Leander to serve on the Council on Mental Health. The motion was seconded by Dr. Tracy and carried.

Dr. Taylor requested that the Association donate \$500 to SoDaPac for educational purposes. Dr. Stransky moved that the State Association donate \$500 to SoDaPac. The motion was seconded by Dr. Lushbough and carried. SoDaPac requested that the Council appoint its Board of Directors. Dr. Tracy moved that the Council re-appoint the present SoDaPac Board of Directors to serve another term. The motion was seconded by Dr. Reding and carried.

A letter from Dr. E. H. Heinrichs concerning inhalation therapy regulations was considered by the Council. Dr. Bartron moved that the Chairman of the Council send a letter to the Council on Education on behalf of the Medical Association pointing out objections to the policy of requiring associate degrees for inhalation therapists. The motion was seconded by Dr. Lewis and carried.

Dr. Tracy introduced the following resolution:

That the Council of the South Dakota State Medical Association endorses the position of the American Medical Association concerning abuses of health care programs; that the Council of the South Dakota State Medical Association go on record as not condoning abuses of any health care program; that the Council will take an active interest in any apparent misuse and/or abuse of programs by physicians in the State of South Dakota.

Dr. Quinn moved that the Council adopt this resolution and that it be released to the press. The motion was seconded by Dr. Lietzke and carried.

Dr. Bartron discussed the use of credit cards by physicians' offices. Dr. Bartron moved that physicians in South Dakota be notified that the use of any credit



card method in collection of bills is the individual's responsibility, but the advertisement of this in the news media is unethical. The motion was seconded by Dr. Leigh and carried.

The meeting was adjourned.

**FIRST HOUSE OF DELEGATES MEETING**  
**Watertown, South Dakota**  
**Saturday, June 7, 1969**

The meeting was called to order by G. E. Tracy, M.D., Speaker of the House of Delegates. Those present for roll call included Doctors: Elston, Quinn, Muggly, Reding, Tracy, Stransky, Taylor, Bartron, Lushbough, Leigh, Lewis, Lietzke, Johnson, Tesar, Lowe, Rosa, Nelson, Auskaps, Belatti, Scheller, Collins, Bell, Hofer, Gere, Mabee, Begley, Aspaas, Gregg, Shaeffer, Pasek, Daw, Ortmeier, Foley, Knabe, Behan, Kovarik, Wood, Gwinn, Mead, Ryan, and Brinkman.

Dr. Gregg moved to dispense with the reading of the minutes of the last meeting inasmuch as they have been published. The motion was seconded by Dr. Scheller and carried.

Dr. Tracy read the appointments to the Reference Committees as follows:

Reference Committee on Credentials

Samuel Rosa, M.D., Chairman

E. A. Pasek, M.D.

Reference Committee on Reports of Officers and Councilors

D. L. Scheller, M.D., Chairman

Denny Ortmeier, M.D.

Reference Committee on Resolutions and Memorials

Clark Johnson, M.D., Chairman

Paul Aspaas, M.D.

Thomas Mead, M.D.

Reference Committee on Reports of Commissions on Medical Service, Communications, and Liaison with Allied Organizations

R. G. Belatti, M.D., Chairman

B. O. Lindbloom, M.D.

Bruce Lushbough, M.D.

Reference Committee on Reports of Commissions on Scientific Medicine, Internal Affairs and Legislation and Governmental Relations

B. J. Begley, M.D., Chairman

James Ryan, M.D.

J. A. Eckrich, Jr., M.D.

Reference Committee on Reports of Special Committees and Miscellaneous Business

J. O. Mabee, M.D., Chairman

Charles Gwinn, M.D.

Romans Auskaps, M.D.

Nominating Committee

W. R. Taylor, M.D., Chairman

Parry Nelson, M.D.

J. A. Muggly, M.D.

C. L. Swanson, M.D.

G. Robert Bell, M.D.

R. G. Gere, M.D.

J. B. Gregg, M.D.

R. J. Foley, M.D.

C. E. Tesar, M.D.

Harold Lowe, M.D.

W. C. Brinkman, M.D.

Dr. Rosa moved that the Reports of Officers and Councilors as contained in the Handbook be referred to the appropriate Committee for action. The motion was seconded by Dr. Lindbloom and carried.

Dr. Auskaps presented a resolution from the Second District Medical Society concerning a change in the Bylaws, and this resolution will be included in the handbook for the 1970 House of Delegates meeting.

Dr. Gregg submitted a resolution concerning the State Medical Association's support of the Governor's Blue Ribbon Committee.

**RESOLUTION #7**

TO: House of Delegates  
South Dakota State Medical Association  
FROM: J. B. Gregg, M.D.  
Sioux Falls, S. D.  
SUBJECT: Governor's Health Advisory Committee

BE IT RESOLVED that the South Dakota State Medical Association go on record as offering its assistance, advice and full cooperation to the Governor's Health Advisory Committee, and that the Governor of South Dakota and other individuals concerned be so notified.

L. W. Graff, M.D. of Britton was nominated for Honorary Life membership by the First District Medical Society. Dr. Taylor moved that Dr. Graff be named an Honorary Life member of the State Medical Association. The motion was seconded by Dr. Bartron and carried.

F. W. Haas, M.D. of Yankton was nominated for Honorary Life membership by the Eighth District Medical Society. Dr. Johnson moved that Dr. Haas be named an Honorary Life member of the State Medical Association. The motion was seconded by Dr. Reding and carried.

Dr. Lietzke introduced the following resolution to the House of Delegates from the Council and moved for its acceptance.

The Council of the South Dakota State Medical Association recommends that we continue the status quo insofar as Blue Shield and the Medical Association's relationship is concerned and that the Council backs Mr. Erickson, both as the Executive Director of Blue Shield and the Executive Secretary of the South Dakota State Medical Association. The Council also recommended that this action be presented to the House of Delegates at their meeting on June 9, 1969.

The motion was seconded by Dr. Bell and carried.

Dr. Tracy assigned the reports to the appropriate reference committees.

Resolution #1 was referred to the Reference Committee on Reports of the Commissions on Scientific Medicine, Internal Affairs and Legislation and Governmental Relations.

**RESOLUTION #1**

TO: House of Delegates  
South Dakota State Medical Association  
FROM: Commission on Scientific Medicine  
SUBJECT: Black Hills Resolution

It is the recommendation of the Commission on Scientific Medicine that the Black Hills Resolution be given a trial at a convenient time, either 1970 or 1971.

Resolution #2 was referred to the Reference Committee on Reports of Special Committees and Miscellaneous.

**RESOLUTION #2**

TO: House of Delegates  
South Dakota State Medical Association  
FROM: Seventh District Medical Society  
SUBJECT: Rights of the Individual

WHEREAS, There is, among members of the medical profession, a difference of opinion as to whether medical care is the right of every individual or a privilege to be earned, and

WHEREAS, recent developments in programs of aid to individual citizens have made it mandatory that organized medicine adopt a unified attitude and policy towards this question, now therefore be it

RESOLVED, that the policy of the South Dakota State Medical Association shall be a statement of principle that medical services in a free society should be regarded as a commodity to be sought and purchased by the recipient, and that the professional efforts of the physician in private practice shall not be confiscated for distribution as a public utility and be it also

RESOLVED, that in the event society sees fit to grant aid to certain of its less affluent members, that they might receive medical services, such aid should be in the form of cash, so that these individuals may purchase from the physician of their choice those services they require, in the same manner as they purchase the other necessities of life, and be it also



RESOLVED, that the South Dakota State Medical Association shall instruct its delegate to submit this resolution to the House of Delegates of the American Medical Association.

Resolution #3 was referred to the Reference Committee on Reports of the Commissions on Scientific Medicine, Internal Affairs and Legislation and Governmental Relations.

#### RESOLUTION #3

TO: House of Delegates  
South Dakota State Medical Association

FROM: The Council and  
Commission on Internal Affairs

SUBJECT: Dues Increase

RESOLVED, that the annual dues for membership in the South Dakota State Medical Association be increased by the House of Delegates to \$125, effective January 1, 1970.

Resolution #4 was referred to the Reference Committee on the Reports of the Commissions on Medical Service, Communications and Allied Organizations.

#### RESOLUTION #4

TO: House of Delegates  
South Dakota State Medical Association

FROM: The Council and  
Commission on Medical Service

SUBJECT: Formation of the "Dean's Club" at the University of South Dakota Medical School

RESOLVED, that the formation of a "Dean's Club" at the University of South Dakota Medical School be endorsed by the House of Delegates of the South Dakota State Medical Association. Membership in the "Dean's Club" will be constituted by alumni and friends of the School who have contributed \$100 or more to the Medical School Endowment Association in one year. An annual reunion will be held in Vermillion, each fall.

Resolution #5 was referred to Reference Committee on Reports of Special Committees and Miscellaneous.

#### RESOLUTION #5

TO: House of Delegates  
South Dakota State Medical Association

FROM: South Dakota Society of Pathologists

SUBJECT: Advertisement of Commercial Laboratory Services in JAMA

WHEREAS, The decision of the Board of Trustees of the AMA has permitted the advertisement of medical laboratory services by commercial laboratories, and

WHEREAS, The acceptance and publication of such advertisement in the Journal in effect endorses the medical services offered by such lay corporations, and

WHEREAS, Such commercial practices may be extended to almost any field of medicine such as pathologic, radiologic, cytologic, electrocardiographic, pulmonary function and clinical psychologic diagnosis, etc. and,

WHEREAS, Such commercial corporations are exempt from the Principles of Medical Ethics and their use may lead to exploitation of the patient, and

WHEREAS, The Board of Trustees has recently asked the Judicial Council to review the ethical consideration of such advertisement in the JAMA.

THEREFORE, Be it resolved by the House of Delegates of the South Dakota State Medical Association that the acceptance of such advertising be condemned and that the SDSMA appeal to the Board of Trustees of the AMA to refrain from accepting such advertisements for publication in the JAMA.

Resolution #6 was referred to the Reference Committee on Reports of Special Committees and Miscellaneous.

#### RESOLUTION #6

TO: House of Delegates  
South Dakota State Medical Association

FROM:

G. E. Tracy, M.D.  
G. W. Knabe, M.D.  
G. F. Tuohy, M.D.  
T. H. Sattler, M.D.  
M. G. Mutch, M.D.  
R. H. Quinn, M.D.  
T. R. Anderson, M.D.  
C. F. Johnson, M.D.  
J. B. Gregg, M.D.  
R. F. Hubner, M.D.  
R. R. Giebink, M.D.  
C. B. McVay, M.D.  
J. W. Donahoe, M.D.

SUBJECT: Support for the University of South Dakota Medical School

WHEREAS: The South Dakota State Medical Association is vitally interested in the future of medical education in South Dakota, and

WHEREAS: The physicians of the state wish to present a united approach to the problems currently facing the Medical School at the University of South Dakota, and

WHEREAS: The major question facing the school is the proper funding of the school at the state level;

NOW THEREFORE BE IT RESOLVED: That the South Dakota State Medical Association inform the Governor, the Legislature, the Board of Regents and the citizens of this state that this Association:

1. strongly supports and endorses the continuance of the present two year medical school,
2. recommends prompt accomplishment of a coordinated study of the feasibility of expanding the present medical school to a four year medical education program.

BE IT FURTHER RESOLVED: That this Association request a separate line item budget for the present medical school to include a minimum state appropriation of \$800,000 for fiscal year 1970-71 and \$1,000,000 for fiscal year 1971-72, and that such funds be administered by the President of the University of South Dakota.

Resolution #7 was referred to the Reference Committee on Reports of Special Committees and Miscellaneous.

Dr. Wrage briefly addressed the House of Delegates regarding the activities of SoDaPAC and urged their support.

Dr. Tracy introduced Mr. Warren May, attorney for the State Medical Association, and Mr. Jim Rosevear, AMA field representative.

Dr. Swanson moved that the House of Delegates be adjourned. The motion was seconded by Dr. Taylor and carried.

#### SECOND HOUSE OF DELEGATES MEETING

Watertown, South Dakota

Sunday, June 8, 1969

The second meeting of the House of Delegates was called to order at 1:30 P.M. by Dr. G. E. Tracy, Speaker. Present for roll call were the following physicians: Doctors John T. Elston, Robert Quinn, J. A. Muggly, A. P. Reding, J. J. Stransky, William Taylor, G. Robert Bartron, Bruce Lushbough, Fred Leigh, E. T. Lietzke, Clark Johnson, Harold Lowe, J. A. Eckrich, Jr., Samuel Rosa, A. Shousha, Parry Nelson, Romans Auskaps, R. G. Belatti, D. L. Scheller, E. H. Collins, G. Robert Bell, Emil Hofer, R. G. Gere, J. O. Mabee, B. J. Begley, P. K. Aspaas, J. B. Gregg, J. Shaeffer, E. A. Pasek, E. F. Daw, D. Ortmeier, R. J. Foley, George Knabe, L. G. Behan, W. J. Kovarik, George Wood, Charles Gwinn, Thomas Mead, James E. Ryan, and W. C. Brinkman.

Dr. Belatti moved to dispense with the reading of the minutes of the last meeting inasmuch as they will be published. The motion was seconded by Dr. Foley and carried.



Dr. Gere requested that the chair recognize Dr. Eric Mueller. Dr. Mueller addressed the members of the House concerning the Association's relationship with Blue Shield and federal contracts held by Blue Shield.

The report of the Nominating Committee was read by Dr. W. R. Taylor.

#### REPORT OF THE NOMINATING COMMITTEE

The Nominating Committee met at 3:30 P.M. in the South Dakota Room, Guest House Motel, Watertown.

Nine members of the committee were present for discussion of items referred to the committee.

The Committee considered the nominations for Councilor from Districts 3, 5, 6, and 7. The following nominees are presented to the House of Delegates for consideration:

- District #3 Bruce Lushbough, M.D.
- District #5 Fred Leigh, M.D.
- District #6 Harvard Lewis, M.D.
- District #7 E. T. Lietzke, M.D.

The Committee nominates the following as officers of the Association:

- President — R. H. Quinn, M.D.
- President-Elect — J. A. Muggly, M.D.
- Vice President — G. R. Bartron, M.D.
- Speaker of the House — Clark Johnson, M.D.

Sites for future annual meetings were discussed. The committee proposes the following:

- 1970 Sioux Falls
- 1971 Rapid City
- 1972 Aberdeen (Tentative) \* Not accepted,  
Replaced by Huron

Respectfully Submitted,  
W. R. Taylor, M.D.  
Chairman

Dr. Nelson moved that a unanimous ballot be cast for the Councilors nominated. The motion was seconded by Dr. Auskaps and carried.

Dr. Stransky moved that a unanimous ballot be cast for the officers nominated by the Committee. The motion was seconded by Dr. Gere and carried.

Dr. Leigh moved that the 1972 annual meeting be held in Huron. The motion was seconded by Dr. Bell and carried.

Dr. Stransky moved that the report of the Nominating Committee be accepted with the change in the location of the 1972 annual meeting. The motion was seconded by Dr. Begley and carried.

The report of the Reference Committee on Credentials was read by Dr. Samuel Rosa.

#### REPORT OF THE REFERENCE COMMITTEE ON CREDENTIALS

The credentials of the Delegates to the South Dakota State Medical Association were checked and the following delegates, alternates, officers and councilors were present:

J. T. Elston, M.D.; R. H. Quinn, M.D.; J. A. Muggly, M.D.; A. P. Reding, M.D.; G. E. Tracy, M.D.; J. J. Stransky, M.D.; William Taylor, M.D.; G. Robert Bartron, M.D.; Bruce Lushbough, M.D.; C. L. Swanson, M.D.; Fred Leigh, M.D.; Harvard Lewis, M.D.; E. T. Lietzke, M.D.; Clark Johnson, M.D.; C. E. Tesar, M.D.; Harold Lowe, M.D.; Samuel Rosa, M.D.; Parry Nelson, M.D.; Romans Auskaps, M.D.; R. G. Belatti, M.D.; D. L. Scheller, M.D.; E. H. Collins, M.D.; G. Robert Bell, M.D.; Emil Hofer, M.D.; R. G. Gere, M.D.; J. O. Mabee, M.D.; B. J. Begley, M.D.; P. K. Aspaas, M.D.; J. B. Gregg, M.D.; J. Shaeffer, M.D.; E. A. Pasek, M.D.; E. F. Daw, M.D.; D. Ortmeier, M.D.; R. J. Foley, M.D.; George Knabe, M.D.; L. G. Behan, M.D.; W. J. Kovarik, M.D.; George Wood, M.D.; Charles Gwinn, M.D.; Thomas Mead, M.D.; James Ryan, M.D.; and W. C. Brinkman, M.D.

A quorum was present for the meeting of the House of Delegates and the credentials of those in attendance were in order.

A total registration for the convention is 326, including 154 physicians and 14 guests, 73 exhibitors, 85 Auxiliary members, for a total of 326.

Respectfully submitted,  
REFERENCE COMMITTEE ON  
CREDENTIALS  
Samuel Rosa, M.D., Chairman  
E. A. Pasek, M.D.  
G. S. Paulson, M.D.

Dr. Shousha moved that the report of the Reference Committee on Credentials be accepted. The motion was seconded by Dr. Lushbough and carried.

The report of the Reference Committee on Reports of Officers and Councilors was read by Dr. Scheller.

#### REPORT OF THE REFERENCE COMMITTEE ON REPORTS OF OFFICERS AND COUNCILORS

The Report of the President was reviewed and studied. The Committee noted he had an extremely heavy year for travel. The Committee commends the President and previous presidents for their efforts. In view of the travel requirements placed on the President, the Committee felt that consideration should be given to increased travel expenses for the President from the Association.

The reports of other officers were considered and the Committee recommends approval. The Committee wishes to extend to Dr. Quinn its best wishes for the coming year.

The Committee studied the reports of the AMA Delegate and Alternate and feels that both should be commended for their efforts on behalf of the Association.

Reports of the Speaker and Councilor at Large were reviewed and found to be acceptable by the Committee.

The Committee reviewed the Report of the Executive Secretary. The Committee feels he should be commended for his continuing efforts on behalf of the doctors of the State. The Committee would again recommend that all members of the Association read the summary of the Executive Secretary's activities.

The reports of the Councilors were studied. Special note was made that the Tenth District met but once during the year. The Committee feels that it would be desirable for the local societies in some districts to meet more frequently.

Respectfully submitted,  
D. L. Scheller, M.D., Chairman  
D. Ortmeier, M.D.

Dr. Taylor moved to accept the report of the Reference Committee on Reports of Officers and Councilors. The motion was seconded by Dr. Collins and carried.

Dr. Clark Johnson read the report of the Reference Committee on Resolutions and Memorials.

#### REPORT OF THE REFERENCE COMMITTEE ON RESOLUTIONS AND MEMORIALS

WHEREAS, the Watertown District Medical Society and the Ladies Auxiliary members have been so thorough in making arrangements for the success of the combined meeting of our 88th anniversary,

BE IT RESOLVED, that the South Dakota State Medical Association give its voice in appreciation and thanks to the local physicians in Watertown and their wives.

WHEREAS, the management of the Guest House Motel has been so cooperative in providing facilities for the success of the 88th Annual Meeting of the South Dakota State Medical Association,

BE IT RESOLVED, that the South Dakota State Medical Association extend its thanks and appreciation to the Guest House Motel.

WHEREAS, the Chamber of Commerce of Watertown, has provided excellent service in making it possible for the success of the working arrangements,

BE IT RESOLVED, that the South Dakota State Medical Association extend its thanks and appreciation to the Watertown Chamber of Commerce.



WHEREAS, the Watertown Public Opinion and Radio Station KWAT have been most cooperative in presenting the public news of the 88th Annual Meeting of the South Dakota State Medical Association,

BE IT RESOLVED, that the South Dakota State Medical Association extend its thanks to the Watertown Public Opinion and Radio Station KWAT.

WHEREAS, the Watertown Country Club has provided facilities for the stag party and has contributed greatly to the success of the annual meeting and entertainment,

BE IT RESOLVED, that the South Dakota State Medical Association extend its thanks to the Watertown Country Club.

WHEREAS, the Plateau Motel has provided facilities for meetings and has contributed greatly to the success of our convention,

BE IT RESOLVED, that the South Dakota State Medical Association extend its thanks and appreciation to the Plateau Motel.

WHEREAS, the Drake Motor Inn has provided facilities for meetings and has contributed greatly to the success of our meeting,

BE IT RESOLVED, that the South Dakota State Medical Association extend its thanks and appreciation to the Drake Motor Inn.

WHEREAS, the Watertown Civic Arena has provided facilities for the general sessions of our 88th annual meeting and contributed greatly to the success of our meeting,

BE IT RESOLVED, that the South Dakota State Medical Association extend its thanks to the management of the Watertown Civic Arena.

WHEREAS, South Dakota Blue Shield has sponsored a social hour prior to our annual banquet and contributed greatly to the success of our annual meeting,

BE IT RESOLVED, that the South Dakota State Medical Association extend its thanks and appreciation to South Dakota Blue Shield.

BE IT ALSO RESOLVED, that the South Dakota State Medical Association donate \$50.00 in memory of W. L. Meyer, M.D. to the South Dakota Medical School Endowment Association and notify his wife of this memorial.

Respectfully submitted,  
REFERENCE COMMITTEE ON  
RESOLUTIONS AND MEMORIALS  
Clark Johnson, M.D., Chairman  
Paul Aspaas, M.D.  
Thomas Mead, M.D.

Dr. Auskaps moved to include radio station KSDR in the resolution. The motion was seconded by Dr. Elston and carried.

Dr. Gere moved to accept the report of the Reference Committee on Resolutions and Memorials. The motion was seconded by Dr. Mabee and carried.

Dr. Belatti read the report of the Reference Committee on Reports of the Commissions on Communications, Liaison with Allied Organizations and Medical Service.

**REPORT OF THE REFERENCE COMMITTEE ON  
REPORTS OF THE COMMISSIONS ON COMMUNICATIONS, LIAISON WITH ALLIED ORGANIZATIONS, AND MEDICAL SERVICE**  
REPORT OF THE COMMISSION ON COMMUNICATIONS:

The Reference Committee recommends the acceptance of this report.

**REPORT OF THE COMMISSION ON LIAISON WITH ALLIED ORGANIZATIONS:**

The Reference Committee recommends the acceptance of this report.

**REPORT OF THE COMMISSION ON MEDICAL SERVICE:**

(1) Medical School Affairs

(a) The Reference Committee recommends the acceptance of this portion of the report.

(b) The Reference Committee recommends the acceptance of this portion of the report with the following changes in the wording:

"The student will be assigned at the time of his admission to a practicing physician who will serve as his advisor or councilor until he has completed his education at the University of South Dakota School of Medicine."

(c) The Reference Committee recommends the acceptance of this portion of the report.

(d) The Reference Committee recommends the acceptance of this portion of the report.

(e) The Reference Committee recommends the deletion of this entire paragraph.

(2) The Reference Committee recommends that this portion of the report be changed to read as follows:

"The Commission recommended to the Council that the South Dakota State Medical Association adopt a policy to establish that in the future, the Association, as such, should not endorse any insurance proposal or Keogh-type presentation such as PRO Fund, Inc. unless it has been submitted in writing and studied by the Commission. No personal interviews to be granted unless recommended by the Commission."

(3) The Reference Committee recommends the acceptance of this portion of the report.

(4) The Reference Committee recommends the acceptance of this portion of the report.

(5) The Reference Committee recommends the acceptance of this portion of the report, with the following scholarships to be awarded on the basis of scholarship and need.

(a) Full tuition scholarship to an incoming freshman student.

(b) Full tuition scholarship to an incoming sophomore student.

(c) \$100 travel allowance to SAMA delegate to the national convention.

(6) #1 The Reference Committee recommends the acceptance of this portion of the report.

#2a The Reference Committee recommends the acceptance of this portion of the report.

#2b The Reference Committee recommends the acceptance of this portion of the report.

#2c The Reference Committee recommends the acceptance of this portion of the report.

#2d The Reference Committee recommends the acceptance of this portion of the report.

#2e The Reference Committee recommends the acceptance of this portion of the report.

#3 The Reference Committee recommends that this portion of the report be changed to read as follows:

"It is recommended that all children with eye disease and/or ear disease and hearing problems requiring treatment be included in the Crippled Children's Program."

#4 The Reference Committee recommends the acceptance of this portion of the report.

#5 The Reference Committee recommends the acceptance of this portion of the report.

(7) The Reference Committee recommends the acceptance of this portion of the report.

The Reference Committee recommends the acceptance of the Report of the Commission on Medical Service as amended.

The Reference Committee urges the acceptance of Resolution #4 with the recommendation that the name be changed from "Dean's Club" to some other suitable name such as "Fellows of the Medical School" or a name to be decided at this Association meeting.

Respectfully submitted,  
REFERENCE COMMITTEE ON REPORTS OF THE COMMISSIONS ON COMMUNICATIONS, LIAISON WITH ALLIED ORGANIZATIONS, AND MEDICAL SERVICE  
R. G. Belatti, M.D., Chairman  
Loren Amundson, M.D.  
B. O. Lindbloom, M.D.  
B. C. Lushbough, M.D.



Dr. Ortmeier moved that full tuition scholarships for one freshman and one sophomore be limited to students from South Dakota. The motion was seconded by Dr. Eckrich and carried. Dr. Gregg moved that instead of a full tuition scholarship to an incoming sophomore student, it be a full tuition scholarship to a beginning sophomore student. The motion was seconded by Dr. Mabee and carried.

The House discussed Resolution #4 introduced by the Commission on Medical Service. Dr. Quinn moved that instead of a Dean's Club, a person contributing \$100 or more to the Medical School be referred to as a Sponsor, a person contributing \$50 to \$100 be referred to as a Sustaining Member and a person contributing \$25 to \$50 be referred to as a Fellow Member. The motion was seconded by Dr. Pasek and carried.

Dr. Taylor moved that the House accept the report of the Reference Committee on Reports of the Commissions on Communications, Liaison with Allied Organizations and Medical Service as amended. The motion was seconded by Dr. Eckrich and carried.

Dr. Begley read the report of the Reference Committee on Reports of the Commissions on Scientific Medicine, Internal Affairs, and Legislation and Governmental Relations.

#### **REPORT OF THE REFERENCE COMMITTEE ON REPORTS OF THE COMMISSIONS ON SCIENTIFIC MEDICINE, INTERNAL AFFAIRS, AND LEGISLATION AND GOVERNMENTAL RELATIONS**

##### **REPORT OF THE COMMISSION ON LEGISLATION AND GOVERNMENTAL RELATIONS**

The Reference Committee considered the report of the Commission on Legislation and Governmental Relations and recommends that the House of Delegates reject the recommendation of the Commission to separate the relationship of South Dakota from Nebraska in the Regional Medical Program, but that the feasibility of association be continuously studied. The Reference Committee recommended the acceptance of the remainder of this report.

##### **REPORT OF THE COMMISSION ON SCIENTIFIC MEDICINE**

The Reference Committee considered the report of the Commission on Scientific Medicine and recommends the acceptance of this report.

##### **REPORT OF THE COMMISSION ON INTERNAL AFFAIRS**

The Reference Committee considered the report of the Commission on Internal Affairs and recommends the acceptance of this report.

##### **RESOLUTION #1**

The Reference Committee considered the resolution submitted by the Black Hills District Medical Society to separate the scientific and business sessions of the annual meeting and recommended that because of economic hardship on the State Medical Association's budget, the House of Delegates should reject this resolution.

##### **RESOLUTION #3**

The Reference Committee recommends the acceptance of this resolution which is included in the Report of the Commission on Internal Affairs.

Respectfully submitted,

Reference Committee on Reports of the Commissions on Scientific Medicine, Internal Affairs, Legislation and Governmental Relations

B. J. Begley, M.D., Chairman

James Ryan, M.D.

J. A. Eckrich, Jr., M.D.

Dr. Begley included an addendum to the committee's report on the resolution introduced by the Black Hills Medical Society which stated that consideration be given by the Black Hills District in the future to host an annual or biennial meeting in that area.

Dr. Gregg requested an explanation of the committee's reasons for recommending the rejection of the splitting of South Dakota and Nebraska in the Regional Medical Program. Dr. Begley stated that the committee felt that there is greater cooperation between Nebraska and South Dakota now than in the past, that South Dakota does not have the clinical

facilities for administering such a program, and that by joining with Nebraska, South Dakota will receive more benefits.

Dr. Elston moved to accept the report of the Reference Committee on Reports of the Commissions on Scientific Medicine, Internal Affairs, and Legislation and Governmental Relations. The motion was seconded by Dr. Behan and carried.

Dr. Mabee read the report of the Reference Committee on Reports of Special Committees and Miscellaneous Business.

#### **REPORT OF THE REFERENCE COMMITTEE ON REPORTS OF SPECIAL COMMITTEES AND MISCELLANEOUS BUSINESS**

The Reference Committee considered the report of the Grievance Committee and recommends the acceptance of this report.

The Reference Committee considered the report of the State Utilization and Insurance Review Committee and recommends the acceptance of this report.

The Reference Committee considered Resolution #2, submitted by the Seventh District Medical Society concerning the "Rights of the Individual." The Reference Committee recommends that Resolution #2 not be adopted.

The Reference Committee considered Resolution #5 submitted by the South Dakota Society of Pathologists concerning advertisements of commercial laboratories in the JAMA. The Reference Committee recommends that Resolution #5 be adopted.

The Reference Committee considered Resolution #6 concerning support of the University of South Dakota Medical School. The Reference Committee recommends the adoption of Resolution #6 and further requests that the resolution be discussed before the House of Delegates by Dr. Clark Johnson.

The Reference Committee considered Resolution #7, introduced by Dr. J. B. Gregg concerning the Governor's Blue Ribbon Committee. The Reference Committee recommends adoption of Resolution #7.

Respectfully submitted,

##### **REFERENCE COMMITTEE ON REPORTS OF SPECIAL COMMITTEES AND MISCELLANEOUS BUSINESS**

J. O. Mabee, M.D., Chairman

Charles Gwinn, M.D.

Romans Auskaps, M.D.

Dr. Clark Johnson addressed the House concerning support of the University of South Dakota Medical School. Dr. Quinn requested that physicians sign Resolution #6 indicating their interest and support of the two-year Medical School.

Dr. Auskaps moved that the report of the Reference Committee on Reports of Special Committees and Miscellaneous Business be accepted. The motion was seconded by Dr. Ryan and carried.

Dr. Tracy administered the oath of office to Dr. Robert Quinn, the incoming president of the State Association. Dr. Tracy made several announcements pertaining to the coming events of the convention.

Dr. Begley moved that the House of Delegates commend the administrative staff for its efforts in arranging the annual meeting. The motion was seconded by Dr. Lushbough and carried.

The meeting adjourned at 3:00 P.M.

#### **PRESIDENTIAL OATH OF OFFICE**

I solemnly swear that I shall carry out the duties of the President of the South Dakota State Medical Association to the best of my ability. I shall strive constantly to maintain the ethics of the medical profession and to promote the public health and welfare. I shall dedicate myself and my office to improving health standards and to the task of bringing increasingly improved medical care to the people of South Dakota. I shall uphold the Constitution and Bylaws of the AMA and the South Dakota State Medical Association. I shall champion the cause of freedom in medical practice and freedom for all my fellow Americans.

I do solemnly swear that I will discharge the duties of this office to the best of my ability, so help me God.



## REPORT OF THE PRESIDENT

It has been my honor to serve as President of the State Association for the past year, during which time I have had an opportunity to become deeply involved in the affairs of our association, to visit old acquaintances in the various districts, and to meet some members for the first time. During the year I have attended many meetings and conferences concerned with Association activities.

In June I attended the annual meeting of the AMA in San Francisco and in November the North Central Conference in St. Paul where I participated in a panel discussion on "Health Manpower." During the year I attended the regular meetings of the Council of the Association and as a member of the Executive Committee and Advisory Council of the Regional Medical Program have attended the meetings in Nebraska and on one occasion in Sioux Falls. In November I attended a H.E.W. Conference on Comprehensive Health Planning in Kansas City and in May will attend the AmPac Workshop in Washington, D. C.

It was possible through the year to visit all but three of the districts and these were missed because of severe winter weather conditions. During the visits to the districts I have discussed the developments in Comprehensive Health Planning, the status of RMP, and have reviewed some of the problems encountered in the Medicare and Title 19 programs, particularly with respect to unusual claims for physicians services under these programs. The reception and discussion in the various districts has been excellent and the interest of the physicians is most gratifying.

On several occasions it was necessary to meet with the Legislative Research Council and with the Welfare Department in Pierre. The conferences with the Legislative Research Council concerned the health manpower resources of the state. At these conferences considerable effort was extended by the Association to preserve the Basic Science law and efforts met with success. Recommendations were also made to gain additional funds for the School of Medicine since it serves as a major source of physicians for our state; these recommendations were well received. This was the year for the long session of State Legislature and was my first opportunity to be present for the opening and to spend several days during the early session becoming familiar with the legislative process.

Keeping abreast of events has been a difficult task and being directly involved in the attempts at solving some of the problems facing medicine has been a very challenging and satisfying experience. I would like to thank the Executive Office, the Council, and the Commissions of the State Association for their excellent help and to congratulate them all on their diligent efforts.

Respectfully submitted,  
John T. Elston, M.D.  
President

*The Report of the President was reviewed and studied. The Committee noted he had an extremely heavy year for travel. The Committee commends the President and previous presidents for their efforts. In view of the travel requirements placed on the President, the Committee felt that consideration should be given to increased travel expenses for the President from the Association.*

## REPORT OF THE PRESIDENT ELECT

As President Elect of the South Dakota State Medical Association, I have attended all Council meetings and all Executive committee meetings of the Association.

I attended the American Medical Association annual meeting in June, 1968, in San Francisco and the Conference of State Presidents meeting in San Francisco.

This has been a year of becoming aware of the problems that the State Medical Association will face in the forthcoming year. A great deal of credit must

be given to Dr. Elston, Mr. Erickson, Mrs. Butler and to the various Commission chairmen for all of the information that has been forwarded to me.

Respectfully submitted,  
Robert H. Quinn, M.D.  
President Elect

*The Report of the President Elect was reviewed. The Committee recommends approval of this report. The Committee also wished to extend to Dr. Quinn its best wishes for the coming year.*

## REPORT OF THE VICE PRESIDENT

The report of the Vice President for the year 1968-1969 shall be brief.

I attended the Council meetings and the Executive Committee meetings. No specific duties have been assigned to the Vice President.

Respectfully submitted,  
J. A. Muggly, M.D.  
Vice President

*The Report of the Vice President was reviewed. The Committee recommends its approval.*

## REPORT OF THE SECRETARY-TREASURER

As your officer, I attended the first meeting of the Budget and Audit Committee at the Holiday Inn, Aberdeen, South Dakota, May 17, 1968, and the second at our Executive Office in Sioux Falls, on December 18, 1968. I attended all Council meetings during the year.

The other duties of my office were carried out with the assistance of our competent executive secretary, Richard C. Erickson, and the staff at the Association office.

Respectfully submitted,  
A. P. Reding, M.D.  
Secretary-Treasurer

*The Report of the Secretary-Treasurer was reviewed. The Committee recommends its approval.*

## REPORT OF THE AMA DELEGATE AND ALTERNATE DELEGATE

The 117th annual convention of the American Medical Association was held in San Francisco, California, on June 16-20, 1968.

The 22nd annual clinical convention of the American Medical Association was held in Miami Beach, Florida, on December 1-4, 1968.

After each of these meetings, a summary of the actions of the House of Delegates was mailed to each member of the State Association from the executive office. Detailed reports were also published in the AMA News and the JAMA. Other important information was either sent out to the members by special letter or included in the Grab Bag from the office of the executive secretary.

Respectfully submitted,  
A. P. Reding, M.D.  
AMA Delegate  
Robert H. Quinn, M.D.  
Alternate Delegate

*The Committee studied the Report of the AMA Delegate and Alternate and feels that both should be commended for their efforts on behalf of the Association.*

## REPORT OF SPEAKER OF THE HOUSE

As Speaker of the House, I have attended all Council meetings and Executive Committee meetings.

Before the annual meeting, Reference Committee appointments will be made and members of the House of Delegates will be asked to serve on these Reference Committees.

Respectfully submitted,  
Gerald E. Tracy, M.D.  
Speaker of the House

*The Report of the Speaker was reviewed. The Committee recommends approval of this report.*



## REPORT OF THE COUNCILOR AT LARGE

As Councilor at Large, I have attended the Council meetings during this past year and have carried out such tasks as were assigned to me.

Respectfully submitted,  
John J. Stransky, M.D.  
Councilor at Large

*The Report of the Councilor at Large was reviewed. The Committee recommends approval of this report.*

## REPORT OF THE EXECUTIVE SECRETARY

This year's report should be entitled "A Staff Report" rather than just that of the executive secretary. The work performed on behalf of the physicians of South Dakota is not a one-man job, but rather the combined efforts of your staff of three people in the Association and forty-nine in Blue Shield. This report is not intended to detail the day to day operations of the State Medical Association, but rather to point out the highlights of the year's activities.

### Liaison With District Societies

This year your executive secretary attended nine district meetings. Snow and bad weather forced cancellation of a number of the district meetings, thus we were unable to attend all district functions. In addition, your public relations director appeared at ten district meetings, many in conjunction with the executive secretary. It is unfortunate that some districts still do not meet regularly. The strength of the Association lies in the district societies, and I would again recommend that all societies meet at least **three** times per year.

### Public Relations

The Medical Association's public relations program this year was aimed at attracting young people to the career of medicine. Following this theme, we obtained booth space at the State Fair at which time literature was made available to young people interested in a career in medicine. The AMA's film "Horizons Unlimited" has been shown on numerous occasions to PTAs and student assemblies. In conjunction with these activities, an Explorer Scout Troop was formed specifically aimed at studying the medical and para-medical fields. This entire program was re-emphasized during Community Health Week, when the Association provided radio and TV spots to stations throughout South Dakota.

Mr. Bob Johnson, Director of Public and Professional Relations, left our employ in September of this year, but returned in January to resume his duties. Mr. Johnson called on 91 physicians' offices during the past year and, in addition, traveled 11,800 miles attending meetings and visiting with physicians. He attended 16 meetings out of the Sioux Falls area, a number of which were national meetings. Patty Butler, Administrative Assistant, traveled 5,300 miles and attended four meetings, including the AMA Clinical Meeting in Miami Beach, Florida. Your executive secretary attended 46 meetings and traveled 26,000 miles during the year. In the course of travel, the executive secretary gave six speeches and represented the Association at as many conferences as time would allow. In addition, a number of physicians represented the Association at both national and state meetings.

The office continues to supply approximately 20,000 pamphlets per year to civic clubs and other organizations within the state. Financial support to medical students through loans and scholarships is always part of your program. Six hundred and fifty dollars was awarded to medical students at the University of South Dakota this past year in the form of scholarships. In addition, the Medical School Endowment Association made loans of \$13,950 to medical students this past year.

Public and professional relations is certainly one of the most important functions of your executive office, and your staff will make every effort to continue to provide services both to the individual physician and to the general public in every way possible.

## Headquarters Building

This year's report **does not** include an addition to the building as have reports in past years. Some minor remodeling has taken place in the headquarters building; however, we are happy to report that as of the end of March, 1969, the Building Fund shows a surplus for the year of approximately \$6,500. During the year all interest was paid on notes outstanding in addition to retiring \$11,405 in principal and notes. It is hoped that within the next three years, all physicians' notes will be repaid, thus leaving only the balance owed to South Dakota Blue Shield on the loan from that organization.

## Commissions

This year each Commission met twice and while each Commission has reported individually to the House of Delegates, it is important to take note of the work that these commission members carry out during the year. Unfortunately, attendance at some of the meetings has been poor, thus putting more work on the doctors who take an active interest in the affairs of the Association. In addition, praise should be given to the other committees of the Association including Grievance, Utilization and Review and the Ad Hoc Committees on Title 19 and Comprehensive Health Planning.

## Legislation

Health legislation again consumed a great deal of time and effort on the part of your staff. Each year we see more and more bills affecting medicine at the legislative level. Your executive secretary and Mr. Bob Johnson spent 45 days in Pierre, working with the Legislature on 21 medical-related bills. A complete legislative report was mailed to all physicians on March 19; therefore, we will not discuss the individual bills which were presented during the 1969 legislative session. Medicine's interest in legislative affairs was apparent this year with the addition of two new legislators from the ranks of the practicing physicians. Drs. Robert Giebink and Arthur Spiry joined Drs. G. Robert Bartron and George Mills as members of the South Dakota Legislature. A special vote of thanks should be given to these physicians for representing both their communities and the medical profession in Pierre.

## Blue Shield and Governmental Programs

Blue Shield continues to play a big part in Association and medical affairs in our state. While there are some physicians who seem to criticize Blue Shield on a day-to-day basis, yet one cannot overlook the tremendous socio-economic impact that Blue Shield has had on the practice of medicine in South Dakota. During the year 1968 Blue Shield processed 150,786 physicians' claims totaling \$5,705,000. The breakdown of this dollar volume by program would include:

Blue Shield standard business	\$1,115,800
Medicare	3,822,200
Title 19	682,800
Dependents — Service men	84,200

Additions in surplus for the year gained from regular underwritten business was \$200,200, thus providing a total surplus of \$509,000. This surplus equals four months average claims and expenses. It is interesting to note that all of this was started on \$15,000 capital loaned by physicians in 1956.

The House should take note of the untiring work of the Board of Directors of Blue Shield and the staff who continue to believe in the responsibility that Blue Shield has to the practicing physician.

## Journal

Unfortunately, this year I am not able to make a glowing report on the financial condition of the Journal, and in fact, as of March, 1969, it would appear that the Journal will sustain a loss of about \$1500 as of the end of the fiscal year. This loss reflects the penalty of \$1500 placed on the Journal by the Post Office Department for incorrect mailing procedures dating back to previous years. This situation was corrected by applying for a new type of postal permit which gives the Journal more flexibility in mailing complimentary copies, advertisers'



copies, and eliminating red tape as to Journal subscriptions. This is a non-recurring expense; therefore, we would hope that the financial picture will improve somewhat next year. Our Journal is facing a problem, along with other journals in the United States; that of a decrease in advertising revenue and the Internal Revenue ruling obligating non-profit journals to pay federal income tax. Dr. Van Demark is to be commended on the many hours he devotes to the Journal in reviewing articles, working with the staff and serving as editor.

### Summary

Your staff has attempted to compile a report to the House of Delegates which highlights the activities for the year within the Association. In many associations, the staff details such things as the number of phone calls, the number of letters written, incoming mail, and other items of this type which would seem unnecessary. However, in taking a quick check, it would appear that approximately 29,000 pieces of mail were sent out of our office during the past year. In truth we do not feel that this is a measure of effectiveness. Instead, we at the staff level would like to feel that the effectiveness of the Association is measured by the service that we render to the individual physician, the communities, and the people of the state. If we can help a doctor with a question, provide a community with a doctor, help a student through school, provide guidance on legislative matters, and create a better image of medicine within the eyes of the public, then we have in fact, as an Association, done a good job.

In conclusion, I would like to thank the president, Dr. John Elston of Rapid City, who this year has really fulfilled the creed of the post office by traveling through sleet and snow to represent the Association. Although I have not yet seen Dr. Elston's report, I would hope that he will include the number of miles that he has traveled during his presidency so that the House can take note of the time and effort spent by the president each year in performing his duties. A special "thanks" also to the officers and councilors for their efforts during the past year.

Respectfully submitted,  
Richard C. Erickson  
Executive Secretary

*The Committee reviewed the Report of the Executive Secretary. The Committee feels he should be commended for his continuing efforts on behalf of the doctors of the State. The Committee could again recommend that all members of the Association read the summary of the Executive Secretary's activities.*

### REPORT OF THE COUNCILOR FIRST DISTRICT

The First District Medical Society had its first fall meeting on September 4, 1968. The meeting was held in conjunction with the District Medical Society Auxiliary and Doctors John Mossing, Willard Ashton, and John Houtte from the Special Education Department at Northern State College discussed learning disabilities and the new "Skill School" recently begun at Northern State College.

The October meeting was held October 2, at the Aberdeen Country Club and the program was presented by Thomas Shields, M.D., Professor of Surgery at Northwestern University whose topic was "Thoracic Trauma." The Nominating Committee was appointed including Chairman C. B. Murdy, B. C. Gerber, and B. F. King.

The November meeting was held November 6, 1968. Dr. John Elston, President of the South Dakota State Medical Association was present and in his talk urged all physicians to be active in local and state medical affairs. In addition, he discussed the comprehensive health planning law in South Dakota. Richard Erickson, Executive Secretary of the South Dakota State Medical Association was also present and discussed Medicare and Blue Shield.

Mr. Clyde Harkins of the Aberdeen Senior Citizens Center then spoke to district society members and auxiliary in regard to the facilities available at the

Center. Programs currently active included recreation, legal aid, health habits aid, employment, arts and crafts, and home care programs including meals on wheels, friendly visiting program, and homemaker service.

The December meeting was held on the 4th of that month. The following officers were unanimously elected: President, J. A. Eckrich, Jr.; Vice-President, George McIntosh, M.D.; Secretary-Treasurer, Karl Kosse, M.D.; Board of Censors, W. R. Taylor, M.D.; Delegates, J. A. Eckrich, Jr., M.D., Samuel Rosa, M.D., C. B. Murdy, M.D.; Alternates, Tom Bunker, M.D., G. H. Steele, M.D., and Alfred Shousha, M.D.

The January meeting of the District Society found attendance poor because of extremely bad weather and the guest speaker was unable to arrive for this reason.

The February meeting was held on February 5, and again attendance was poor with only 13 members present with the weather being extremely poor. It was unanimously agreed that the District Utilization and Review Committee should continue functioning for one more year with the present membership including Chairman B. C. Gerber, M.D. and members C. L. Vogele, M.D., M. E. Sanders, M.D., and Karl Kosse, M.D. W. R. Taylor, M.D. was selected to be a member of the State Nominating Committee. Because of extremely poor traveling conditions, the guest speaker was unable to arrive.

The March meeting was held March 5, 1969. Dr. Eberhard Heinrichs of Watertown, South Dakota, discussed the Head Start Program.

The April meeting was held on April 2, with Dr. Gerald Tracy of Watertown, South Dakota, discussing tuberculosis.

Respectfully submitted,  
W. R. Taylor, M.D.  
Councilor  
First District

*The Report of the Councilor for the First District Medical Society was reviewed. The Committee recommends its approval.*

### REPORT OF THE COUNCILOR SECOND DISTRICT

MEMBERSHIP: 28 Members

#### OFFICERS:

President—	David F. Piro, M.D.
Vice President—	James C. Larson, M.D.
Secretary-Treasurer—	T. J. Wrage, M.D.
Councilor—	G. Robert Bartron, M.D.
Censors—	C. R. Stoltz, M.D.
	Duane G. Monson, M.D.
	P. S. Nelson, M.D.
Delegates—	Romans Auskaps, M.D.
	P. S. Nelson, M.D.
Alternates—	C. J. Clark, M.D.
	D. N. Fedt, M.D.

The Watertown District Medical Society holds monthly dinner meetings on the first Tuesday of each month from September to June. In addition to the regular business meetings, the following programs were presented during the year.

**April 1968:** The program for the meeting was a discussion of diagnosis and treatment of carcinoma of the lung by Drs. Heupel, Monson and Piro.

**May 1968:** Dr. David M. Paul, a physiatrist from the VA Hospital in Iowa City, Iowa, presented a program on "Myofascial Pain Syndromes."

**September 1968:** Discussion by Dr. G. E. Tracy of the progress of activities of the Tuberculosis Control Center to date.

**October 1968:** Report of the Councilor, Dr. G. R. Bartron, and discussion of specific items.

**November 1968:** Official visitation of Dr. John Elston from Rapid City, President of the State Medical Association and the Executive Secretary, Mr. Richard Erickson.

**December 1968:** Election of Officers.

**January 1969:** No Program.



**February 1969:** Presentation of a movie by the South Dakota Heart Association and distribution of literature on hypertension by the South Dakota Heart Association.

**March 1969:** No Program.

**April 1969:** Discussion of disaster planning and particularly emphasis on the use of the temporary hospital stored in Watertown, narrated by Dr. S. W. Allen, Coordinator of the District's Disaster Planning Committee.

Respectfully submitted,  
G. Robert Bartron, M.D.  
Councilor  
Second District

*The Report of the Councilor for the Second District Medical Society was reviewed. The Committee recommends its approval.*

#### **REPORT OF THE COUNCILOR THIRD DISTRICT**

A meeting was held on October 23, 1968. Doctor Friefeld presented slides and a lecture on his recent travels behind the Iron Curtain and Dr. Robert Quinn of Sioux Falls, South Dakota, gave a review of "Diagnosis and Treatment of Diseases of the Breast."

A meeting was held on February 6, 1969, at Flaudreau, South Dakota. For the scientific program, Dr. Harry Farrell of Sioux Falls, South Dakota, presented a lecture on "The Diagnosis and Treatment of Allergic Diseases in Children."

Officers for the new year were elected. They were as follows:

Dr. Robert Shaskey — President  
Dr. H. J. Stensrud — Vice President  
Dr. C. M. Kershner — Secretary-Treasurer  
Delegates — Drs. R. G. Belatti and Donald Scheller  
Alternates — Drs. H. R. Wold and R. K. Arbon  
Censors — Dr. C. S. Roberts, Chairman

Drs. Bruce Lushbough and R. G. Belatti

It was necessary to cancel meetings in December of 1968 and April of 1969 because of severe weather conditions.

Respectfully submitted,  
Bruce Lushbough, M.D.  
Councilor  
Third District

*The Committee reviewed the Report of the Councilor of the Third District Medical Society. The Committee recommends its approval.*

#### **REPORT OF THE COUNCILOR FOURTH DISTRICT**

The Fourth District Medical Society met on January 21, 1969. Election of Officers was held and those elected are as follows: President — R. C. Jahraus, M.D.; Vice President — A. J. Tieszen, M.D.; Secretary Treasurer — J. T. Cowan, M.D.; Censor — D. H. Park, M.D.; Delegate — E. H. Collins, M.D.; and Alternate Delegate — B. O. Lindbloom, M.D. A Utilization Review Committee was picked which consisted of R. J. Zakahi, M.D., L. C. Askwig, M.D., and Barbara Spears, M.D.

Dr. G. J. Van Heuvelen nominated Mrs. Gerry Robbins for the Distinguished Service Award. He also made preparation for the background necessary in submitting her name. This has been taken care of. We are very proud of this choice and feel the District is well represented in Mrs. Gerry Robbins.

Dr. John Elston gave a talk on Comprehensive Health Planning and its role in the future.

Richard C. Erickson also gave a talk concerning the recent actions taken by the United States Department of Health, Education and Welfare — particularly in regards to the funds which he said were being frozen or, they had been locked in a program with no increase for at least the next eighteen months.

Another meeting of the Fourth District Medical Society was held on April 8, 1969. This meeting consisted mostly of the Councilor's report to the District.

The District voted unanimously in favor of the

Pro-Fund, Inc., Plan only in that the individual doctors in the State might have the opportunity to participate in such a program.

Dr. Robert E. Van Demark addressed the meeting on, "Difficult Fracture Cases That Have Been Referred to Me."

The Fourth District also, by unanimous vote, supported Dr. G. J. Van Heuvelen in the fine work he has been doing as the State Public Health Officer and hoped that he could continue in this position for at least several years in the future. The District is aware of the effort being made to replace Dr. Van Heuvelen, but feel in their minds that he is doing and has done an excellent job and have jointly and unanimously commended him for same.

Respectfully submitted,  
C. L. Swanson, M.D.  
Councilor  
Fourth District

*The Committee reviewed the Report of the Councilor for the Fourth District Medical Society. The Committee recommends its approval.*

#### **REPORT OF THE COUNCILOR SIXTH DISTRICT**

Four meetings of the Sixth District Medical Society were held in the past twelve months. Besides the routine society business conducted at these meetings, special features included a farewell tribute to Dr. Preston Brogdon of Mitchell. Dr. Brogdon served as district councilor and state president during his fifteen years of practice in the state. He is now engaged in one of the most recent innovations in medical education, as a faculty member in the family practice division of the University of Oklahoma Medical School.

In October, 1968, Dr. Robert Hayes of Vermillion, South Dakota, discussed the future of medical education in South Dakota as the featured speaker.

In March, 1969, Dr. Elston, President of the South Dakota State Medical Association was the featured speaker and discussed all facets of State and National medical problems. He emphasized the need for the physician to improve his image and increase his involvement in community affairs. He warned against the abuse of Medicare and Medicaid by the very few unscrupulous, giving the whole of the medical community a black eye.

Officers of the District were elected at the December, 1968, meeting as follows: President, Dr. B. R. Skogmo; Vice President, Dr. Charles Loos; Secretary-Treasurer, Dr. J. O. Judge; Delegates, Dr. R. G. Gere and Dr. J. O. Mabey; Alternates, Dr. Don Weatherill and Dr. Charles Monson; Councilor, Dr. H. R. Lewis.

Dr. R. G. Gere was appointed to the State Nominating Committee from this District.

Respectfully submitted,  
H. R. Lewis, M.D.  
Councilor  
Sixth District

*The Committee reviewed the Report of the Councilor of the Sixth District Medical Society. The Committee recommends the approval of this report.*

#### **REPORT OF THE COUNCILOR SEVENTH DISTRICT**

The Seventh District membership lists 121 active, 12 honorary, and one associate member.

Meetings are held the first Tuesday of each month, except June, July and August, after dinner, at the Westward Ho Country Club. The Board of Directors meets the night before at which meeting all business of the society is reviewed and then submitted to the general membership at the monthly meeting for their acceptance or rejection.

September 3, 1968

Four doctors were advanced to active membership and five additional doctors made application for probationary membership. The problem of obtaining doctors for practice in South Dakota was thoroughly discussed and methods of attracting physicians to South Dakota were advanced by the membership.



John Elston, M.D., our State president, was a guest at this meeting and gave an excellent discussion regarding the medical problems in our state.

October 4, 1968

This was purely a dinner and social evening with the Woman's Auxiliary of the Seventh District and was well attended.

November 5, 1968

Dr. Gerald Tuohy and his committee on the emergency training program for ambulance personnel, firemen and policemen, were commended for their fine efforts in this area. The program has been extremely successful in Sioux Falls and towns in the surrounding area. The Seventh District purchased a total of \$1,774.48 worth of equipment and supplies for the use by emergency training personnel.

December 3, 1968

At this meeting the following list of candidates for office for 1969 was presented:

President — B. J. Begley, M.D.

Vice President — Paul Aspaas, M.D.

Secretary — John Gregg, M.D.

Treasurer — Robert Giebink, M.D.

Board of Directors:

Edward Pasek, M.D. — term to expire 1969

Edward Daw, M.D. — term to expire 1970

Charles McDonald, M.D. — term to expire 1971

James Shaeffer, M.D. — term to expire 1972

A slate of seven delegates and seven alternates was also proposed. By unanimous vote the above listed candidates were elected to office.

Dr. Gerald Tracy, Watertown, Chairman of the Commission on Medical Service of the SDSMA and chairman of the medical school affairs subcommittee gave an excellent discussion and explanation of the attrition rate concerning the students of the Medical School at Vermillion.

January 7, 1969

A most interesting program relating to the current concepts in the control of TBC was presented by Drs. Vincent Cutshall and Michael Ferrell. There was considerable discussion and many questions followed the presentation. Drs. Knabe, Welty and McBoom of the medical school faculty were guests at this meeting.

February 4, 1969

This was a combined dinner and social meeting with the Woman's Auxiliary and was well attended.

Dr. Robert Hayes of Vermillion, spoke on recent developments in the regional medical planning program. There was much discussion and many questions by the membership. One new member was accepted for active status in the society.

April 1, 1969

A letter from Pathologists Anderson and Wegner regarding the establishment of a community blood bank was read. The concept was endorsed but the Society felt this should be a function of the hospitals and their staffs. An excellent presentation on psychiatric problems was given by Drs. Knowles and Leander.

Respectfully submitted,  
E. T. Lietzke, M.D.  
Councilor  
Seventh District

*The Committee reviewed the Report of the Councilor of the Seventh District Medical Society. The Committee recommends the approval of this report.*

#### REPORT OF THE COUNCILOR EIGHTH DISTRICT

Since the last annual meeting of the Eighth District Medical Society, we have held five district meetings. We will have held six meetings by the time of the annual meeting of the South Dakota State Medical Association. The officers this year have been:

George Knabe, M.D. — President

Lawrence Savage, M.D. — Vice-President

Lawrence Behan, M.D. — Treasurer

Morris L. Radack, M.D. — Secretary

New officers for 1969 were elected at the November 7, 1968, meeting and are as follows:

Lawrence Savage, M.D. — President

Morris L. Radack, M.D. — Vice-President

Lawrence Behan, M.D. — Secretary

James Jackson, M.D. — Treasurer

The nominating committee also recommended that the delegates remain the same as they had for the 1968 year. The delegates will be Dr. Robert Foley, Chairman, and serving with him will be Dr. M. B. Lyso and Dr. George Knabe. Dr. Lawrence Behan will be the alternate delegate.

Our district meetings have alternated between a business meeting and a scientific meeting. At each meeting, Dr. Clark F. Johnson, Councilor for the 8th District, presents a report pertaining to the South Dakota State Medical Association Council meetings and any business pertaining to the Association.

During the year of 1968, many of our meetings have been predominantly on the subject of the Medical School at the University of South Dakota. At our June 13, 1968, meeting Mr. John Zimmer spoke on the why and how greater financing of the Medical School for South Dakota can be obtained. On October 21, 1968, Dr. Knabe gave a progress report on the South Dakota Medical School budget and also gave another one at the November 7th meeting.

Dr. Savage has also made reports on the progress being made by the Lewis and Clark Mental Health Clinic which is located at the Sacred Heart Hospital in Yankton, South Dakota. Dr. Reding has kept us informed as an AMA Delegate as to the progress on the Rural Health Committee of the AMA.

At the September 19, 1968, meeting applications for membership to the South Dakota State Medical Association and the 8th District Medical Society were presented and approved. These two men are Dr. Kenneth A. Muckala, Vermillion, South Dakota, and Dr. Richard R. Thornton of Yankton, South Dakota.

Respectfully submitted,  
Clark F. Johnson  
Councilor  
Eighth District

*The Committee has reviewed the Report of the Councilor for the Eighth District Medical Society. The Committee recommends approval of this report.*

#### REPORT OF THE COUNCILOR NINTH DISTRICT

A meeting of the Black Hills District Medical Society was held on Tuesday, February 13, 1968. A communication regarding nominations for the State Distinguished Service Award was read and Dr. Elston recommended that a special mailing be made to the district membership informing them in this regard. A motion was made by Dr. Williams, seconded by Dr. Cowan and passed unanimously stating that \$100 be given to the S. D. State Anesthetist Society to aid them in hosting this year's meeting in Rapid City. Results of the poll made in December in reference to the Black Hills Seminar were read and discussed. Richard Erickson, the State Association Executive Secretary, noted the seminar might be held in the future in conjunction with the state meeting. Drs. Langenfeld, Golliher and Davidson were voted upon and unanimously accepted as new members.

The scientific portion of the meeting consisted of brief but informative discussions of new activities and programs at the state and national level by Dr. Stransky, President of the South Dakota State Medical Association, Richard Erickson, Executive Secretary, and Dr. Hayes, South Dakota Coordinator of the Regional Heart, Cancer and Stroke Program.

The April meeting of the Black Hills District Medical Society was held on Tuesday, April 11, 1968, at the Arrowhead Country Club. A letter from Mayor Baker of Rapid City addressed to Dr. Frost concerning possible termination of the City ambulance service was read. It was recommended that this letter be forwarded to the Rapid City Medical Society.



Dr. Tesar presented a councilor's report which detailed the numerous activities now occurring at the State level.

Dr. Geib discussed the future of the Black Hills District Medical Society Seminar, and proposed the following resolution, which was seconded by Dr. Cowan and unanimously passed, with the instructions that it should be presented at the next State Council Meeting:

Resolved: That the South Dakota State Medical Association Annual Meeting be composed of two portions:

- (a) A business meeting to be held in the spring or early summer in the Eastern half of South Dakota,
- (b) A scientific meeting to be held in late summer or fall in the Rapid City area.

The scientific portion of the meeting was then held. It consisted of a presentation by Dr. Walter J. Bushness, Denver, Colorado (Courtesy of Merck Sharp and Dohme) on the subject of "Gout and Other Crystal-Induced Arthropathies."

The June meeting of the Black Hills District Medical Society was held at Ellsworth Air Force Base on Wednesday, June 12, 1968. Colonel Sanford, Chief of Medical Services, acted as host. The first portion of the program consisted of a demonstration of Air Force equipment.

A letter from Richard Erickson, Executive Secretary of the South Dakota State Medical Society was read regarding the membership of Dr. Robert Jones. A motion was made and seconded to initiate a letter to the State Medical Association proposing that Dr. Jones be made an inactive member.

Under new business, Dr. Frost discussed a report by the A.M.A. concerning the use of pooled plasma, and the incidence of hepatitis. It was recommended that the use of pooled plasma be discontinued or used only when deemed of utmost necessity.

The scientific portion of the meeting consisted of case presentations by members of the Ellsworth Hospital staff.

Following adjournment of the meeting, members and Ellsworth Hospital staff retired to a social hour and buffet dinner at the Officer's Club.

The August meeting of the Black Hills District Medical Society was held at the Arrowhead Country Club on August 8, 1968. There was a discussion concerning yellow page telephone listing as "advertising." It was moved by Dr. Whitney, seconded by Dr. Cowan, and unanimously passed that a committee be formed to determine, if any, what guidelines should be formed concerning the ethics of yellow page advertising. Dr. Kunz's application for membership into the Society was unanimously accepted.

The scientific portion of the program consisted of a discussion and a slide demonstration of fractures involving the hand by Dr. Blunck, and the presentation of an unusual and interesting medical case by Dr. Finley.

The meeting then adjourned and the members retired to the Club dining room for dinner.

The October meeting was held at the Arrowhead Country Club on October 8, 1968. The scientific portion of the meeting, which was sponsored by Merck, Sharp, and Dohme, consisted of a discussion concerning the etiology and treatment of hypertensive heart disease by Dr. John C. McGiff, Associate Professor of Medicine and Director of the Cardiovascular Section, St. Louis, Missouri.

The December meeting of the Black Hills District Medical Society was held on December 12, 1968, at the Arrowhead Country Club. Dr. Sejvar's application for membership into the Black Hills District Medical Society was read and unanimously accepted. Richard Erickson, Executive Secretary of the State Medical Association, read and discussed the Councilor's report.

The president of the State Medical Association, John T. Elston, made his official Presidential visitation and discussed participation by physicians in the State Medical Association, the District societies, the

Heart, Cancer and Stroke program, and the Medicare and Medicaid programs.

The Nominating Committee, consisting of Drs. Boyce, Behrens, and Whitney, announced their nominations of officers for 1969, including President, Dr. Haugan; Vice President, Dr. Golliher; and Secretary-Treasurer, Dr. Cowan. There were no additional nominations, and these were unanimously accepted.

The scientific portion of the program was then presented. Mr. Jerry Kern of the South Dakota Department of Public Health showed and discussed a movie on venereal disease. Dr. Frost discussed diagnostic tests currently available and their usefulness. Dr. Shining discussed current therapy.

The meeting was then adjourned, and the members retired to dinner in the club dining room.

Respectfully submitted,  
Charles E. Tesar, M.D.  
Councilor  
Ninth District

*The Committee considered the Report of the Councilor for the Ninth District Medical Society. The Committee recommends acceptance of this report.*

#### REPORT OF THE COUNCILOR TENTH DISTRICT

The Rosebud District Medical Society held one meeting in January of 1969. At that time, Dr. John T. Elston made his presidential visitation to the district. Mr. Richard C. Erickson, executive secretary also attended this dinner meeting.

Respectfully submitted,  
Marion R. Cosand, M.D.  
Councilor  
Tenth District

*The Committee considered the Report of the Councilor for the Tenth District Medical Society. Special note was made that the Tenth District met but once during the year. The Committee feels that it would be desirable for the local societies in some districts to meet more frequently.*

#### REPORT OF THE COUNCILOR ELEVENTH DISTRICT

The District Medical Society held monthly meetings in Mobridge. The following were chosen as officers:

Gus Torkildson, M.D., President  
B. P. Nolan, M.D., Secretary-Treasurer  
James Ryan, M.D., Delegate  
L. M. Linde, M.D., Alternate Delegate

The president of the Association and the executive secretary were unable to attend again this year because of inclement weather and bad road conditions.

Respectfully submitted,  
Harold E. Lowe, M.D.  
Councilor  
Eleventh District

*The Committee considered the Report of the Councilor for the Eleventh District Medical Society. The Committee recommends the approval of this report.*

#### REPORT OF THE COUNCILOR TWELFTH DISTRICT

The members of the District Society met on three occasions. The main concern in the District is the diminishing numbers of physicians in our District with no apparent relief in sight.

Respectfully submitted,  
Harry H. Brauer, M.D.  
Councilor  
Twelfth District

*The Committee considered the Report of the Councilor for the Twelfth District Medical Society. The Committee recommends the approval of this report.*

#### REPORT OF THE COUNCIL

The quarterly Council meetings were all held in Sioux Falls this past year. This move was decided upon as an economy and efficiency measure and has worked out well. The meetings were well attended by all the officers, councilors and chairmen of the various commissions.



The minutes of the Council meetings are published in the **South Dakota Journal of Medicine**.

Respectfully submitted,  
E. T. Lietzke, M.D.  
Chairman of the Council

*The Committee considered the Report of the Council. The Committee recommends the approval of this report.*

### REPORT OF THE COMMISSION ON COMMUNICATIONS

The Commission on Communications met three times during the past year. During the State Fair at Huron, in September, 1968, members of the Commission and other volunteers manned the Medical Association booth. The chairman thanks them for their fine work and generous contribution of their time. At the meeting in March, 1969, the Commission recommended that the booth be discontinued. For the time, cost, etc., the booth was just not accomplishing very much and it was felt that public relations efforts could be more effectively directed in other programs.

Community Health Week, October 20-26, 1968, was emphasized by asking members of the Commission to personally contact the editors and ask that news releases be placed in the local papers. It was felt that this might be a more effective way to get publicity than by having the news releases mailed out. I think that the news releases should be mailed out and the doctors also contact the editors for the most effective method in the future.

The film "Horizons Unlimited," a very interesting and informative film on medical careers is available through the South Dakota State Medical Association. The Commission recommended that an effort should be made by members of the Commission and by District Medical Societies to show the film at PTA meetings or in conjunction with Senior Day activities in high schools as a way to promote young people's interest in careers in medicine.

The Commission discussed "Medical School Day" at the University Medical School which previously has been an annual affair, and recommended that if it could or should be again established that the Association should provide publicity for the program and provide transportation for interested high school and college students.

Finally, the Commission recommended that closer relations between medical students and District Societies be established if possible. The Association could provide the AMA Journal to students; the districts could adopt students from their district as honorary members, invite them to meetings and provide advice and counsel. Volunteers could act as "Big Brothers." A closer relationship would benefit both the student and the Association.

Respectfully submitted,  
COMMISSION ON COMMUNICATIONS  
R. R. Giebink, M.D.  
R. E. Van Demark, M.D.  
John H. Hoskins, M.D.  
Duane B. Reaney, M.D.  
Hubert H. Theissen, M.D.  
C. A. Johnson, M.D.  
B. F. King, M.D.  
D. L. Scheller, M.D.  
Clifford Lardinois, M.D.  
B. O. Lindbloom, M.D.  
William O. Hanson, M.D.  
James D. Collins, M.D.

*The Reference Committee recommends the acceptance of this report.*

### REPORT OF THE COMMISSION ON LIAISON WITH ALLIED ORGANIZATIONS

The Commission met twice during the past year — August 17, 1968 and March 22, 1969. A subcommittee of the Commission met with representatives of the Bar Association on September 28, 1968.

Representatives of the Pharmaceutical Association attended the first meeting and a discussion was held on narcotic drug laws.

The meeting with the Bar Association concerned the development of a Medical-Legal Program which will be presented in various locations around the State. These arrangements have not been finalized as yet.

The Commission has recommended that a presentation on Medicine and Religion be arranged for the 1970 annual meeting.

The Commission considered the AMA statement on alcoholism and recommended that the Association subscribe to the principles of this paper, but pointed out that a permissive attitude toward the alcoholic does not solve all of his problems.

The Commission was represented at a meeting with nursing groups concerning intensive care training programs.

The Commission has experienced very poor attendance at its meetings during the past year. Additional physician involvement in the work of this group is urgently needed.

Respectfully submitted,  
COMMISSION ON LIAISON WITH ALLIED ORGANIZATIONS  
D. J. Buchanan, M.D., Chairman  
Gerald F. Tuohy, M.D.  
Jack T. Berry, M.D.  
Melvin Marousek, M.D.  
A. J. Tieszen, M.D.  
V. V. Volin, M.D.  
Jerry Walton, M.D.  
R. F. Thompson, M.D.  
Dagfinn Lie, M.D.  
Theodore Hohm, M.D.  
Mary Sanders, M.D.  
Barbara Spears, M.D.

*The Reference Committee recommends the acceptance of this report.*

### REPORT OF THE COMMISSION ON MEDICAL SERVICE

The Commission on Medical Service had two official meetings this year, one on August 17, 1968, and one on March 29, 1969. There was about 50% attendance at each one of these meetings. Many items were brought before the Commission on Medical Service, the most pressing being the problems related to the Medical School.

At the March 29, meeting of the Commission on Medical Service, all the members of the Admissions Committee of the University of South Dakota School of Medicine, in addition to the Dean and the Business Manager of the Medical School, were present for the meeting and made a presentation in reference to both admissions and attrition at the University of South Dakota School of Medicine. Following this meeting, the following recommendations were made to the Council:

- (1) Medical School Affairs
  - (a) The Chairman of the Commission on Medical Service, or his designate, will be available to serve on the Admissions Committee as an active and voting member.

*The Reference Committee recommends the acceptance of this portion of the report.*

- (b) The preceptor will be assigned at the time that a student is admitted to the medical school and will serve as his counselor, advisor and preceptor from the time of admission to the Medical School until he has completed his medical education at the University of South Dakota School of Medicine.

*The Reference Committee recommends the acceptance of this portion of the report with the following change in wording: "The student will be assigned at the time of his admission to a practicing physician who will serve as his advisor or counselor until he has completed his education at the University of South Dakota School of Medicine."*

- (c) The Chairman of the Commission on Medical Service will make available to the University of South Dakota School of Medicine, physicians who will avail themselves for interviews of applicants, prim-



arily to ascertain motivation, character and stability as regards their potential as a medical student.

*The Reference Committee recommends the acceptance of this portion of the report.*

- (d) That the Chairman of the Commission on Medical Service will always in the future appoint a specific Medical School Affairs Committee and that all areas of concern in reference to the Medical School from members of the South Dakota State Medical Association should be referred to this committee and subsequently to the Commission as a whole.

*The Reference Committee recommends the acceptance of this portion of the report.*

- (e) That the Council authorize the Chairman of the Commission on Medical Service, or his designate, to implement all of the above recommendations each year, so the members of the South Dakota State Medical Association may have a more active participation in the affairs of the Medical School, and to further supply clinicians who will avail themselves, when need be, to supplement clinical experience and teaching as it relates to the basic sciences taught at the University School of Medicine.

*The Reference Committee recommends the deletion of this entire paragraph.*

It was the feeling of the Commission, as a whole, that the Medical School Admissions Committee is doing their very best to screen applicants in an appropriate manner to help improve the attrition rate at the University Medical School. It was also the feeling of the Commission that while this effort is true, there are also problems in which the Medical Association could be of help and these recommendations will hopefully supply that help.

(2) The Commission recommended to the Council that the South Dakota State Medical Association adopt a policy to establish that in the future, the Association, as such, should not endorse any insurance proposal unless it offered something to the physicians that cannot be obtained on any other basis. This applied also to a Keogh-type presentation such as PRO Fund, Inc., which had been referred from the Council to the Commission on Medical Service.

*The Reference Committee recommends that this portion of the report be changed to read as follows:*

*The Commission recommended to the Council that the South Dakota State Medical Association adopt a policy to establish that in the future, the Association, as such, should not endorse any insurance proposal or Keogh-type presentation such as PRO Fund, Inc., unless it has been submitted in writing and studied by the Commission. No personal interviews to be granted unless recommended by the Commission.*

(3) The Chairman of the Commission attended a meeting of the Joint Committee on Accreditation of Hospitals in Chicago, in February of 1969, at which time he reported that there were no specific guidelines available from the Joint Commission on Accreditation of Hospitals at the present time, but that these would soon be forthcoming and until such time as they are available, no major changes are recommended in the bylaws of any hospital or any medical staff at this time.

*The Committee recommends acceptance of this portion of the report.*

(4) Dr. Richard Belatti of Madison, South Dakota, was appointed Rural Health Chairman for South Dakota. As such, he attended the Rural Health Conference in Philadelphia. He gave his report at the March 29, meeting and it was recommended that this report be printed in the **South Dakota Journal of Medicine** for the information of the entire membership of the Association. Dr. Belatti was commended for his excellent report.

*The Reference Committee recommends acceptance of this portion of the report.*

Dr. Bernard Gerber has also been very active as Farm Safety Council advisor and the Commission recommended to the Council the adoption of the reporting form for farm accidents to be utilized by physicians in the State.

*The Reference Committee recommends acceptance of this portion of the report.*

(5) The Commission recommended to the Council of the State Medical Association that scholarships and awards at the University of South Dakota Medical School be approved and increased, if possible. They are as follows:

- (a) \$100 scholarship to a freshman student from South Dakota.
- (b) \$100 scholarship to a sophomore student from South Dakota.
- (c) \$450 tuition scholarship to an incoming freshman from South Dakota.
- (d) \$100 travel allowance to SAMA delegate to the national convention.

*The Reference Committee recommends acceptance of this portion of the report, with the following scholarships to be awarded on the basis of scholarship and need:*

- (A) Full tuition scholarship to an incoming freshman student.
- (B) Full tuition scholarship to an incoming sophomore student.
- (C) \$100 travel allowance to SAMA delegate to the national convention.

(6) The Chairman appointed a Committee to study the Crippled Children's Program in South Dakota. They had four productive meetings and came up with the following resolution which the Commission approved and recommended to the Council for approval:

- 1. Lobbyists representing the South Dakota State Medical Association should give added emphasis to procurement of additional State funds to the Crippled Children's Program. This effort would be further rewarded by additional matching funds from Federal Services.

*The Reference Committee recommends acceptance of this portion of the report.*

#### 2. Crippled Children's Clinics

- (a) All children seen in the clinics should have a referral, by their family doctors. This would be interpreted as a screening exam, and thereby it would be recommended that each child be seen only by specialties within whose province their problems lie, and the exam of each child by a pediatrician be eliminated.

*The Reference Committee recommends the acceptance of this portion of the report.*

- (b) Records of the clinics should be uniform, and be available on a year to year basis. A copy of the records should follow the patient to his family doctor, or any other doctor seen later in consultation.

*The Reference Committee recommends the acceptance of this portion of the report.*

- (c) Site of the clinic should be established at a medical facility (Hospital or Clinic) if at all possible, where laboratory and x-ray facilities would be available.

*The Reference Committee recommends the acceptance of this portion of the report.*

- (d) The official consultant at the clinic should come from the farthest possible distance, so as to avoid seeing his own patients, and thereby give more impartial advice. All local physicians in the area are encouraged to be a part of the clinic team and act as co-ordinators.

*The Reference Committee recommends the acceptance of this portion of the report.*

- (e) Once the diagnosis is made, the clinic team must refer the patient back to the family doctor. It is then his responsibility for further care, or referral. If referral is necessary, it is recommended this be done within the state of South Dakota.

*The Reference Committee recommends the acceptance of this portion of the report.*



3. It is recommended that all children with ear disease and hearing problems requiring treatment be included in the Crippled Children's Program.

*The Reference Committee recommends that this portion of the report be changed to read as follows:*

It is recommended that all children with eye disease and/or ear disease and hearing problems requiring treatment be included in the Crippled Children's Program.

4. **Recommended for Study** — The plan of health care with hospital based nurses, rather than state-based! This plan assumes the local hospital to be the supplier of medical care. The nurses are responsible to the facility, rather than to the State, for providing nursing care, case finding, and other duties which they presently provide.

*The Reference Committee recommends the acceptance of this portion of the report.*

5. It is recommended that the application for Surgical and Hospital Care be amended. The second paragraph under Agreement of Parents or Guardian should be deleted. We have obtained legal counsel and find that the paragraph has no legal bond. It is also frightening to many parents to sign such a blanket statement.

*The Reference Committee recommends the acceptance of this portion of the report.*

(7) The Commission discussed the activities of the South Dakota Medical School Endowment Association and recommended that the Council of the South Dakota State Medical Association endorse the formation of a "Dean's Club" to support the Medical School at Vermillion, and that the Council present this matter to the House of Delegates for endorsement at the annual meeting. The Commission also recommended that the Council express its appreciation to Dr. E. H. Peters for his work in this regard.

*The Reference Committee recommends the acceptance of this portion of the report.*

The Commission has had under consideration many areas of concern during the past year. The greatest of these must be the University of South Dakota School of Medicine. The Commission recommends to all physicians in the State of South Dakota to lend their support in any way possible; whether teaching, preceptorship, or financial support through the South Dakota Medical School Endowment Association, or attending lectures as a clinician to support clinical background to students, as a "must" for the future development of the Medical School.

The Commission appointed two of its members to the total membership of the South Dakota Medical School Endowment Association in an effort to draw up a brochure which would give all information necessary to properly advise physicians of the circumstances surrounding the Medical School at the present time, so they, in turn, would be in a position to factually inform legislators in their own specific regions.

Respectfully submitted,  
Commission on Medical Service  
Gerald E. Tracy, M.D., Chairman  
T. H. Willcockson, M.D.  
W. B. Odland, M.D.  
Bernard C. Gerber, M.D.  
William R. Taylor, M.D.  
L. H. Amundson, M.D.  
Warren Jones, M.D.  
Donald Weatherill, M.D.  
Edward T. Ruud, M.D.  
Roland F. Hubner, M.D.  
Judson O. Mabee, M.D.  
F. R. Williams, M.D.

*The Reference Committee recommends the acceptance of the Report of the Commission on Medical Service as amended.*

## REPORT OF THE COMMISSION ON LEGISLATION AND GOVERNMENTAL RELATIONS

There were two meetings of this Commission, August 17, 1968, and on March 29, 1969. Under discussion at the first meeting were the following matters:

- 1) Regional Medical Planning program. The resolution from the 7th District Society was tabled because it appeared that the need for separation of South Dakota and Nebraska had ceased to exist and it was not feasible or possible to accomplish such separation, according to information available at that time.
- 2) The Commission favored the stand of the AMA regarding the subject of mandatory reporting, should the subject come up in the legislative session.
- 3) The Commission recommended that the SDSMA not support revisions of the Good Samaritan Law as written but consider approval if written in a different form.
- 4) Doctor Hayes was appointed to discuss the matter of the future of the S. D. State Health Department with Dr. Van Heuvelen and report back to the Commission his findings, emphasizing the plans of the incumbent Director of the Department and possible successors to the position.
- 5) The Commission recommended that the SDSMA endorse the concept of a bill to license inhalation therapists if such a bill be introduced into the S. D. legislature.
- 6) The resolution of the S. D. Academy of Ophthalmology and Otolaryngology relating to speech and hearing personnel was discussed.
- 7) The Commission recommended that the SDSMA sponsor the revisions in the Medical Practice Act in the 1969 S. D. legislature.
- 8) The Commission reaffirmed the previous position of the SDSMA in the matter of any abortion bill which might be introduced into the S. D. legislature.
- 9) In the event a bill was introduced into the 1969 S. D. legislature, the Commission members would be canvassed regarding their opinions relating to licensure of psychologists in this state.
- 10) This Commission recommended that the Commissioner of Higher Education of this State be appraised of the matter of redundant, excessively differing college physical examination forms and his assistance be sought in the development of uniform examination blanks.
- 11) The Commission recommended that Mr. Erickson, Mr. May, J. B. Gregg, M.D., and the physician members of the legislature be empowered to act on legislative matters in instances when time does not permit a Commission meeting, during the legislative session.

## FATE OF BILLS OF INTEREST TO MEDICINE IN THE 1969 LEGISLATURE

### Sponsored Bills

- 1) SB 11 — Revision of Medical Practice Act  
Passed both Houses
- 2) SB 57 — Student Loan Program  
Passed both Houses
- 3) SB 197 — U.S.D. Medical School Fund  
Tabled in Committee

### Endorsed Bills

- 4) SB 29 — Water Fluoridation  
Passed both Houses
- 5) SB 73 — Uniform Anatomical Gift Act  
Passed both Houses
- 6) SB 143 — Slow Moving Vehicles Bill  
Killed in Committee
- 7) HB 519 — Pop tax bill for Medical School  
Killed in Committee
- 8) HB 770 — Medical Education Study Bill  
Killed in Committee
- 9) HB 890 — Licensure of Psychologists  
Killed in Committee

### Opposed Bills

- 10) HB 566 — Sales Tax on Professional Services  
Killed in Committee
- 11) HB 608 — Waiver of Confidential Information  
Killed in Committee



- 12) HB 819 — Mandatory Reporting  
Killed in Committee
- Bills of Interest**
- 13) SB 56 — Basic Science Fee Revision  
Passed both Houses
- 14) SB 107 — Optical Lens Dispensing  
Killed in Committee
- 15) SB 108 — Clarification of Optometric Law  
Killed in Committee
- 16) SB 156 — Amends county hospital law  
Passed both Houses
- 17) HB 517 — Nursing home licensure, care levels  
Passed both Houses
- 18) HB 526 — County support, Mental Health Clinics  
Killed in Committee
- 19) HB 559 — Narcotic violation, lower penalty  
Killed in Committee
- 20) HB 589 — Prepaid prescription drug insurance  
Killed in Committee
- 21) HB 771 — Clarifies Optometric Law  
Killed in Committee

At the second meeting of the Commission, the following items of business were considered.

1) Separation of South Dakota and Nebraska in the Regional Medical Program. **The Commission recommends to the SDSMA that the relationship between this State and Nebraska in the R.M.P. be dissolved.**

2) The results of various pieces of legislation introduced into the 1969 South Dakota legislature were discussed.

3) Dr. Hayes reported concerning his discussion with Dr. Van Heuvelen and his investigation regarding possible reorganization of the South Dakota State Health Department. In view of the fact that there are now several different committees representing the SDSMA and the State of South Dakota all investigating this subject, and no definite answers immediately forthcoming, it is not possible to give any definite report now. It is the hope of this Commission that it and the SDSMA will be kept informed of the findings, opinions, and recommendations of the special blue ribbon committee appointed by Governor F. Farrar and chaired by Roscoe Dean, M.D., which is studying the South Dakota Health Department.

4) It is called to the attention of the SDSMA that there had been called a meeting in Pierre, on February 24, 1969, by the South Dakota State Department of Public Welfare, for the purpose of discussing with representatives of the SDSMA, the South Dakota Hospital Association and the South Dakota Nursing Home Association, the subject of a 10 percent across the board reduction in fees for care of welfare patients.

Because of a vigorous protest upon the part of representatives of these organizations, the meeting was cancelled and funds were found elsewhere. However, **the SDSMA should take due note of this happening and prepare for similar problems in the future.**

Respectfully submitted,  
Commission on Legislation and Governmental Relations  
J. B. Gregg, M.D., Chairman  
R. G. Gere, M.D.  
Thomas Bunker, M.D.  
Courtney Anderson, M.D.  
R. J. Bareis, M.D.  
Charles Tesar, M.D.  
R. W. Honke, M.D.  
R. J. Foley, M.D.  
Bill Church, M.D.  
G. Robert Bartron, M.D.  
Robert Hayes, M.D.  
Howard Wold, M.D.

*The Reference Committee considered the report of the Commission on Legislation and Governmental Relations and recommends that the House of Delegates reject the recommendation of the Commission to separate the relationship of South Dakota from Nebraska in the Regional Medical Program, but that the feasibility of association be continuously studied. The Reference Committee recommended the acceptance of the remainder of this report.*

## REPORT OF THE COMMISSION ON SCIENTIFIC MEDICINE

The Commission on Scientific Medicine met on Saturday, August 17, 1968, and on November 23, 1968. The Commission also met on March 22, 1969.

1. Tuberculosis Control. The Commission had the general responsibility to initiate approval of a mailing to all doctors in South Dakota for information concerning the latest available treatment for cases of tuberculosis. This was mailed to all physicians in the State.

2. Mental Health — Mental Retardation. Communications were made concerning the adequacy of care at the Plankinton State Training School and we were informed by J. D. Parkinson, Executive Director of the State Board of Charities and Corrections, that our Commission will be made aware of any action taken by the institution in providing medical care for the trainees.

3. Diabetes. No action.

4. Heart, Cancer and Stroke areas. No action.

5. Annual Meeting. The format for the annual meeting to be held in Watertown, June 7 through June 10, 1969, has been completed. Workshops are again instituted and a plan of general interest to all physicians in the State has been prepared. Scientific sessions will be held June 9 and 10; workshops, June 9; specialty meetings on June 10. The workshops will be in the areas of Genetics, Psychedelic Drug Abuse, Sports Injuries, and Tuberculosis.

6. Future meetings. The following decisions were made concerning future meetings: There will be the presentation on Medicine and Religion at the 1970 annual meeting. Ortho Pharmaceutical Company will sponsor a speaker at the 1970 meeting. The Commission anticipates a trial of the split session of the annual meeting to be initiated either in 1970 or 1971, depending on the decision of the Council and the House of Delegates.

This report is respectfully submitted by the Commission on Scientific Medicine.

Bruce Lushbough, M.D., Chairman  
H. Streeter Shining, M.D.  
James C. Larson, M.D.  
H. Phil Gross, M.D.  
Robert Nelson, M.D.  
A. C. Vogele, M.D.  
R. B. Leander, M.D.  
E. H. Heinrichs, M.D.  
John Tidd, M.D.  
David Studenberg, M.D.  
Noel deDianous, M.D.  
Karl Wegner, M.D.

*The Reference Committee considered the report of the Commission on Scientific Medicine and recommends the acceptance of this report.*

## REPORT OF COMMISSION ON INTERNAL AFFAIRS

The Internal Affairs Commission met August 17, 1968 and March 22, 1969, and discussed and recommended regarding the following matters:

Compilation of the obituary records for the present year includes the demise of Dr. William L. Meyer of Custer, South Dakota, in June 1968, and Dr. C. V. Auld of Plankinton, South Dakota, in May, 1968.

The possibility of instituting central billing through the State Association office for State and American Medical Association dues was discussed, but it was the unanimous feeling of the Commission that the matter of direct billing not be implemented.

Consideration was given to financial support by the State Association for guest speakers for specialty society meetings and it was the feeling that no additional funds should be provided but whenever possible, speakers who were being used for the State meeting, be contacted for use by the specialty groups also. A study of the Benevolent Fund by Dr. Stoltz, Mrs. Howard Wold and Mrs. A. P. Reding, representing the Women's Auxiliary, was held in August and another meeting was held in January, 1969. It



was their recommendation that a loan fund be established for the paramedical fields. It was the feeling that no further contributions from either organization were necessary at this time and that the loan fund be conducted on a revolving fund basis.

Considerable discussion has taken place and long and careful study has been given to the financial structure of the State Association, and it is the unanimous opinion of the Commission on Internal Affairs that a dues increase is necessary and the Commission recommended a \$25.00 annual dues increase, for the Council's consideration to be proposed to the House of Delegates at the 1969 meeting.

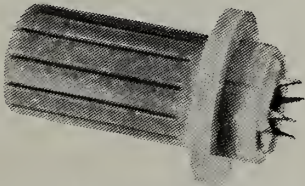
Study was given to the possibility of changing the bylaws to combine the Commissions on Communications and Liaison with Allied Organizations. It was the opinion of the Commission, and given as a recommendation to the Council, that no bylaw changes be proposed in regard to this, but the two Commissions, perhaps, could make efforts to hold joint meetings to see how feasible this would be.

Respectfully submitted,  
**COMMISSION ON INTERNAL AFFAIRS**  
B. J. Begley, M.D., Chairman  
C. Rodney Stoltz, M.D.  
Richard G. Belatti, M.D.  
Edward A. Pasek, M.D.  
Edwin J. Moore, M.D.  
B. T. Lenz, M.D.  
George Angelos, M.D.  
Richard Hockett, M.D.  
Saul Friefeld, M.D.  
Bruce Allen, M.D.  
Charles S. Roberts, M.D.  
David Seaman, M.D.

*The Reference Committee considered the report of the Commission on Internal Affairs and recommends the acceptance of this report.*


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## SOUTH DAKOTA STATE MEDICAL ASSOCIATION PROPOSED BUDGET 1969-1970

ITEM	INCOME	
	Budgeted 1968-1969	Proposed 1969-1970
State Dues	\$48,000.00	\$48,000.00
Annual Meeting	9,000.00	9,000.00
Refunds & Misc.	1,000.00	1,000.00
Interest	500.00	500.00
Car Reimbursement	1,200.00	1,200.00
Admin. Income	1,140.00	700.00
	\$60,840.00	\$60,400.00

ITEM	EXPENSES	
	Budgeted 1968-1969	Proposed 1969-1970
Salary, Exec. Sec.	\$ 6,600.00	\$ 7,200.00
Salary, Other	12,000.00	12,000.00
Social Security	750.00	900.00
Legal and Audit	2,600.00	3,000.00
Telephone & Telegraph	2,000.00	2,000.00
Office Supplies	2,100.00	2,300.00
Dues and Subscrip.	1,000.00	800.00
Physicians Travel	4,000.00	4,000.00
Annual Meeting	8,500.00	8,500.00
Public Relations	3,200.00	3,200.00
Rent	3,000.00	3,000.00
Miscellaneous	50.00	50.00
Postage	2,200.00	2,200.00
Legislative Expense	2,000.00	1,500.00
Medical School Endow.	200.00	200.00
Car Expense	2,200.00	2,200.00
Clinical Pathology	200.00	200.00
Staff Travel	4,500.00	4,300.00
Insurance	100.00	100.00
Employment Tax	50.00	50.00
Employee Relations	1,600.00	1,800.00
Taxes	300.00	200.00
Auxiliary Newsletter		700.00
	\$59,150.00	\$60,400.00
Reserve	1,690.00	
	\$60,840.00	

\*Note: No reserve established this year

## SOUTH DAKOTA JOURNAL OF MEDICINE INCOME

ITEM	INCOME	
	Budgeted 1968-1969	Proposed 1969-1970
Advertising	\$23,000.00	\$23,800.00
Subscriptions	800.00	800.00
Miscellaneous	600.00	600.00
Refunds	800.00	800.00
	\$25,200.00	\$26,000.00

ITEM	EXPENSES	
	Budgeted 1968-1969	Proposed 1969-1970
Salary, Editor	\$ 720.00	\$ 720.00
Salary, Staff	3,300.00	3,900.00
Legal and Audit	50.00	200.00
Rent	300.00	600.00
Telephone & Telegraph	200.00	300.00
Social Security	55.00	120.00
Office Supplies	19,000.00	19,000.00
Postage	300.00	900.00
Travel	500.00	200.00
Employee Relations	75.00	60.00
Taxes		
	\$25,200.00	\$26,000.00



### BUILDING FUND INCOME

ITEM	Budgeted 1968-1969	Proposed 1969-1970
Blue Shield Rent	\$28,800.00	\$28,800.00
Association Rent	3,000.00	3,000.00
Journal Rent	300.00	600.00
Board of Exam. Rent	600.00	600.00
	<hr/> \$32,700.00	<hr/> \$33,000.00

### EXPENSES

ITEM	Budgeted 1968-1969	Proposed 1969-1970
Janitor & Repair	\$ 5,000.00	\$ 7,000.00
Utilities	5,000.00	5,000.00
Interest	4,500.00	5,000.00
Repay. of Loans	6,480.00	8,000.00
Legal & Audit	2,000.00	1,000.00
Taxes and Insur.	5,000.00	5,000.00
	<hr/> \$27,980.00	<hr/> \$31,000.00
Reserve	4,720.00	2,000.00
	<hr/> \$32,700.00	<hr/> \$33,000.00

### REPORT OF THE GRIEVANCE COMMITTEE

There were no grievances referred to the Committee during the current year. Consequently, no meetings or consultations were held.

Respectfully submitted,  
Grievance Committee  
R. H. Hayes, M.D., Chairman  
C. Rodney Stoltz, M.D.  
James P. Steele, M.D.  
Paul Hohm, M.D.  
John J. Stransky, M.D.

*The Reference Committee considered the report of the Grievance Committee and recommends the acceptance of this report.*

### REPORT OF THE STATE UTILIZATION AND INSURANCE REVIEW COMMITTEE

This Committee is charged with the responsibility of supervising and cooperating with the hospital and District Utilization and Insurance Review Committees, as well as to make itself available to the public, insurance carriers, both private and fiscal agents for Medicare, and to the physicians and surgeons of South Dakota.

This Committee was under the able guidance and Chairmanship of Dr. H. R. Wold, Madison, S. D., until September 1968, at which time he resigned for reasons of health. I have accepted the Chairmanship of the Committee as of that date. Most of the work of the Committee has been carried on by correspondence. Three meetings were called during the past year for discussing various problems that have confronted the Committee that were found to be too difficult to arrive at a just and equitable conclusion through the mail.

Utilization studies have been a primary function of the local hospital and District Insurance Review Committees. They have not found it necessary to refer problem cases to the State Committee. The Committee has no disciplinary authority. Its function is educational, adjudicative, and negotiative. Disciplinary action, if necessary, will remain in the province of the Grievance Committee of the State Society.

During the past year, the Committee reviewed a total of 28 cases; 14 of these cases were disputed fee cases, 11 were for determination of reasonable fees for services performed, and 3 were in the realm of utilization submitted by Blue Shield to determine the necessity or frequency of visits in management of long term care patients in hospital and extended care facilities.

Topics that were discussed and recommendations made fell in the following categories:

1. Concurrent medical and surgical care.
2. Acceptable methods of using electro-shock treatments.
3. Necessity of surgical assistants — minor procedures.
4. Allowances for surgical assistants.
5. Allowances for intensive care or prolonged detention.
6. Utilization of laboratory services.
7. Use of automated lab panel tests.
8. Functioning District and Hospital U/R Committees.
9. Use of various procedure codes for hospital admissions.

The Committee has attempted to function as impartially as possible to protect both the rights of the physician and the patient in each case. The Committee activities are time consuming but also very interesting. Whenever there is a question of reasonable remuneration by a carrier to the physician, the Committee finds it difficult at times to render judgment because of inadequate presentation of claim, improper use of the listing in the South Dakota Relative Value Study, and incomplete reports. The Committee recommends to all physicians that complete information be available to Blue Shield as well as the State Utilization and Review Committee whenever questions of compensation arise.

Respectfully submitted,  
State Utilization and Insurance  
Review Committee  
E. W. Sanderson, M.D., Chairman  
Harvard Lewis, M.D.  
H. R. Wold, M.D.  
Roscoe Dean, M.D.  
C. B. McVay, M.D.  
E. S. Palmerton, M.D.

*The Reference Committee considered the report of the State Utilization and Insurance Review Committee and recommends the acceptance of this report.*

### MINUTES CORPORATE BODY MEETING Watertown, South Dakota June 7, 1969

The meeting was called to order at 2:30 P.M. by Richard C. Erickson, Secretary-Treasurer.

Present for roll call were the following physicians: J. A. Eckrich, Jr.; Samuel Rosa; A. Shousha; Parry Nelson; Romans Auskaps; R. G. Belatti; D. L. Scheller; E. H. Collins; G. Robert Bell; Emil Hofer; R. G. Gere; J. O. Mabee; B. J. Begley; P. K. Aspaas; J. B. Gregg; J. Shaeffer; E. A. Pasek; E. F. Daw; D. Ortmeier; R. J. Foley; George Knabe; L. G. Behan; W. J. Kovarik; George Wood; Thomas Mead; Charles Gwinn; James E. Ryan; and W. C. Brinkman. Absent were: W. B. Odland, M.D.; M. R. Cosand, M.D.; H. H. Brauer, M.D.; and G. M. Huet, M.D.

B. J. Begley, M.D., moved to dispense with the reading of the minutes of the 1968 Corporate Body Meeting. The motion was seconded by F. D. Leigh, M.D. The question was called, and the motion carried.

The Blue Shield financial report for 1968, the CHAMPUS financial report for 1968, the Medicare financial report for 1968, and the Title 19 financial report for 1968 were reviewed and discussed by Mr. Erickson. Romans Auskaps, M.D. moved that these reports be accepted. The motion was seconded by G. E. Tracy, M.D., and the motion was carried.

B. F. King, M.D. presented an outline of the Blue Shield operations for the year 1968.

The report of the Nominating Committee was read. Those nominated for membership on the Board of Directors of South Dakota Medical Service, Inc. were: B. F. King, M.D.; John Elston, M.D.; and Paul Hohm, M.D. G. Robert Bartron, M.D. moved that the report of the Nominating Committee be accepted and that these individuals be elected to the Board of Directors. The motion was seconded by G. E. Tracy, M.D. The question was called and on voice vote the motion carried.

(Continued on Page 39)



(Continued from Page 34)

D. G. Ortmeier, M.D., nominated Mr. Richard Wold of the Northwestern National Bank in Sioux Falls to fill the vacancy on the Blue Shield Board of Directors created by the death of Mr. Jesse Olson. The motion was duly seconded, and on voice vote the motion was carried.

Mr. Erickson discussed the status of the Full Payment of Benefits Contract which was adopted at the last Corporate Body Meeting.

Discussion was held on the matter of bidding a contract underwritten by Blue Shield with the State Department of Public Welfare for recipients of Aid to Dependent Children. B. J. Begley, M.D. moved that Blue Shield be authorized to submit a bid for coverage of ADC for handling and processing the claims, with the exception of psychiatric claims which would be handled by the Welfare Department. The motion was seconded by G. E. Tracy, M.D. The question was called, and on voice vote the motion was carried.

Dr. King read the resolution from the Second District Medical Society concerning payment for voluntary sterilization by South Dakota Blue Shield. Mr. Erickson pointed out that this resolution, if passed by the Corporate Body, would have to be referred to the Board of Directors and to the Insurance Commissioner for a final decision. Romans Auskaps, M.D. moved that this resolution be accepted with the removal of the third paragraph. The motion was seconded by Parry Nelson, M.D. B. J. Begley, M.D., moved that the motion to accept the resolution as amended be tabled. This motion was seconded by Fred Leigh, M.D. The question was called and the motion carried.

G. E. Tracy, M.D., moved that the resolution be considered by the Board of Directors and the appropriate action taken. The motion was seconded by

G. Robert Bartron, M.D. The question was called. The count was 19 pro, and 21 against. The motion was defeated.

Mr. Erickson presented plaques to three members of the Blue Shield Board of Directors who have served on the Board for ten years. Those so honored were: H. Russell Brown, M.D., Watertown; Mr. G. L. Hill of Aberdeen; and B. F. King, M.D., Aberdeen.

J. T. Elston, M.D. moved that the meeting be adjourned. The motion was seconded by Fred Leigh, M.D. On voice vote the motion carried.

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*250mg. Capsules*

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**SOUTH DAKOTA MEDICAL SERVICE, INC.**  
**BALANCE SHEET**  
**DECEMBER 31, 1968**  
**ASSETS**

**Ledger Assets:**

Cash on hand and in bank .....	\$270,080.33
Accounts receivable — Federal Program .....	15,071.24
Accounts receivable — Medical Assistance Program .....	27,917.59
Accounts receivable — N. W. Bell Telephone Co. ....	2,466.73
<b>Savings Certificates:</b>	
Farmers & Merchants Bank, Aberdeen, S. D. ....	15,000.00
First National Bank, Sioux Falls, S. D. ....	15,000.00
Western State Bank, Sioux Falls, S. D. ....	15,000.00
Northwestern National Bank, Sioux Falls, S. D. ....	15,000.00
First National Bank, Brookings, S. D. ....	15,000.00
American National Bank, Rapid City, S. D. ....	15,000.00
Rushmore State Bank, Rapid City, S. D. ....	15,000.00
First National Bank of Black Hills, Rapid City, S. D. ....	15,000.00
Citizens Bank, Mobridge, S. D. ....	15,000.00
Security Bank, Webster, S. D. ....	15,000.00
Farmers & Merchants Bank, Watertown, S. D. ....	15,000.00
American State Bank, Yankton, S. D. ....	15,000.00
First Dakota National Bank, Yankton, S. D. ....	15,000.00
Valley State Bank, Yankton, S. D. ....	15,000.00
Commercial Trust and Savings, Mitchell, S. D. ....	15,000.00
Mitchell National Bank, Mitchell, S. D. ....	15,000.00
Farmers & Merchants Bank, Huron, S. D. ....	15,000.00
Citizens State Bank, Clark, S. D. ....	15,000.00
Ipswich State Bank, Ipswich, S. D. ....	15,000.00
Custer County Bank, Custer, S. D. ....	15,000.00
Dakota State Bank, Milbank, S. D. ....	15,000.00
Lyman County Bank, Kennebec, S. D. ....	15,000.00
First Federal Savings & Loan, Huron, S. D. ....	10,000.00
Home Federal Savings & Loan, Sioux Falls, S. D. ....	10,000.00
First Federal Savings & Loan, Watertown, S. D. ....	10,000.00
U. S. Treasury Bond .....	10,000.00
U. S. Treasury Note .....	30,000.00
U. S. Treasury Note .....	30,000.00
U. S. Treasury Note .....	30,000.00
U. S. Treasury Note .....	30,000.00
Mortgage Loan—South Dakota Medical Association .....	72,911.29
Real Estate .....	28,000.00
<b>Total Ledger Assets</b> .....	<b>\$906,447.18</b>

**LIABILITIES AND RESERVES**

**Liabilities:**

Accrued State of South Dakota premium tax payable .....	\$ 9,539.47
Accounts payable — Federal Program .....	11,000.00
Accounts payable — N. W. Bell Telephone Co. ....	2,815.00
Accounts payable — real estate .....	20,000.00

**Total Liabilities** ..... \$ 43,354.47

**Deferred Income**

Unearned subscribers' dues .....	\$ 84,054.37
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**Reserves:**

Estimated claims not reported .....	\$220,000.00
Equalization of Complementary 65 Program .....	50,000.00

**Total Reserves** ..... \$270,000.00

**Surplus — Unassigned** ..... \$509,038.34

**Total Liabilities and Reserves** ..... \$906,447.18



**STATEMENT OF INCOME AND EXPENSES  
FOR THE YEAR ENDED DECEMBER 31, 1968**

**Receipts:**

Earned Subscription income .....	\$1,631,462.62
Interest earned .....	22,753.49
Other Income .....	783.12
	<u>\$1,654,999.23</u>

**Medical and Surgical Claim Expenses:**

Participating physicians .....	\$ 734,596.88
Non-participating physicians .....	381,217.11
	<u>\$1,115,813.99</u>

**Operating Expenses:**

Salaries .....	\$ 222,871.73
Travel expense .....	14,052.74
Rent .....	29,010.00
Board meeting expense .....	5,854.04
Boards, bureaus and associations .....	5,161.82
Legal expense .....	10,680.11
Printing and stationery .....	17,115.72
Books, newspapers and periodicals .....	421.61
Postage .....	19,912.44
Telephone and telegraph .....	14,349.16
Advertising .....	15,749.35
Insurance .....	1,161.45
Employee relations .....	17,975.48
Auditing, actuarial and consulting .....	4,238.45
Outside service agencies .....	106,916.18
Miscellaneous expense .....	(85.80)
Social Security tax expense .....	9,281.75
Taxes, licenses and fees .....	9,915.72
Other taxes .....	3,719.85
Furniture and equipment expense .....	160.21
Office supplies .....	10,752.49
Billing and Collection Expense .....	111,591.30
Equipment rental .....	5,265.91
Depreciation .....	4,594.66

\$ 640,666.37

Less reimbursements .....	\$ 382,904.93
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**Net Operating Expenses** ..... **\$ 257,761.44**

Total expenses and claim payments .....	<u>\$1,373,575.43</u>
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**Net Operating Income** ..... **\$ 281,423.80**

**Other Charges or Credits:**

Estimated reserve for unreported services .....	\$ 81,146.24
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**Net Gain to Surplus — Unassigned** ..... **\$ 200,277.56**



**ARMY MEDICARE PROGRAM  
CHAMPUS**

INCOME	1968	December	1968	Year to Date
		* 1967		* 1967
A. Claims Income .....	\$ 9,827.14	\$	\$ 96,263.00	\$
B. Administrative Income .....	429.00		4,212.25	
TOTAL INCOME .....	\$10,256.14		\$100,475.25	
<b>EXPENSE</b>				
A. Claims Expense .....	\$22,668.02	\$	\$ 84,271.68	\$
B. Administrative Expense .....	973.21		6,190.26	
TOTAL EXPENSE .....	\$23,641.23		\$ 90,461.94	
% of Adm. Expense				
To Claims Expense .....	4.3%		7.3%	
<b>ADMINISTRATIVE EXPENSE</b>				
Salaries .....	\$ 456.58	\$	\$ 3,320.49	\$
Travel .....	—0—		17.57	
Rent .....	92.00		644.00	
Boards, Bureaus & Assn. ....	7.41		55.76	
Legal Expense .....	—0—		26.75	
Furniture Depreciation .....	16.59		116.09	
Equipment Rental .....	—0—		9.53	
Printing & Stationery .....	—0—		15.56	
Office Supplies .....	1.18		158.04	
Books, Periodicals .....	—0—		16.08	
Postage .....	23.98		173.93	
Telephone .....	1.60		91.86	
Wire System .....	—0—		—0—	
Insurance .....	—0—		—0—	
Employee Relations .....	142.66		354.21	
Auditing .....	—0—		—0—	
Pay to Service Agencies .....	199.42		981.44	
Social Security .....	22.20		145.94	
Board Meeting .....	—0—		—0—	
Miscellaneous .....	—0—		—0—	
Other Taxes .....	9.59		63.01	
NET OPERATING EXPENSE .....	\$ 973.21	\$	\$ 6,190.26	\$

\* Change in format, reason for no 1967 figures.



**MEDICARE  
TITLE XVIII—PART B**

CLAIMS	December		Year to Date	
	1968	1967	1968	1967
A. Claims Income .....	\$276,000.00	\$250,000.00	\$3,844,000.00	\$3,449,500.00
B. Admin. Income .....	29,000.00	—0—	341,000.00	177,180.00
<b>TOTAL INCOME</b> .....	<b>\$305,000.00</b>	<b>\$250,000.00</b>	<b>\$4,185,000.00</b>	<b>\$3,626,680.00</b>
<b>EXPENSE</b>				
A. Claims Expense .....	\$276,161.90	\$217,693.62	\$3,822,285.77	\$3,397,689.75
B. Admin. Expense .....	28,876.79	22,795.34	311,088.37	229,774.89
<b>TOTAL EXPENSE</b> .....	<b>\$305,038.69</b>	<b>\$240,488.96</b>	<b>\$4,133,374.14</b>	<b>\$3,627,464.64</b>
% of Admin. Expense To Claims Expense .....	10.5%	10.4%	8.1%	6.8%
<b>ADMINISTRATIVE EXPENSE</b>				
Other Expense .....	\$ —0—	\$ —0—	\$ —0—	\$ 2,557.56
Salaries .....	10,817.29	10,266.68	135,299.93	118,558.97
Travel .....	118.99	554.72	3,619.16	3,414.56
Rent .....	1,567.00	938.43	18,804.00	11,076.72
Boards & Bureaus .....	210.80	201.03	2,278.46	2,466.70
Legal Expense .....	225.95	15.45	3,526.29	1,829.59
Furniture Depreciation .....	209.94	206.23	2,465.40	1,907.90
Equipment Rental .....	401.85	599.21	5,854.08	4,623.15
Printing .....	3,314.49	61.48	9,866.34	5,803.88
Office Supplies .....	125.85	8.90	6,340.16	7,680.45
Periodicals .....	—0—	—0—	50.17	23.40
Postage .....	966.02	684.48	12,888.47	9,031.72
Telephone .....	855.64	366.55	8,679.53	4,520.32
Wire System .....	110.00	12.81	149.67	27.25
Insurance .....	—0—	—0—	462.61	650.19
Empl. Benefits .....	2,284.37	287.46	10,757.36	4,996.68
Auditing .....	—0—	—0—	—0—	69.53
Service Agencies .....	7,707.03	8,002.06	83,143.43	43,327.78
Social Security .....	490.16	439.89	5,830.11	4,892.06
Board Meeting .....	—0—	—0—	—0—	—0—
Miscellaneous .....	—0—	—0—	—0—	25.00
Other Taxes .....	211.66	149.96	2,517.55	1,891.92
Title 19 Usage .....	(740.25)	—0—	(1,444.35)	—0—
<b>NET OPERATING EXPENSE</b> .....	<b>\$ 28,876.79</b>	<b>\$ 22,795.34</b>	<b>\$ 311,088.37</b>	<b>\$ 229,774.89</b>



**MEDICAL ASSISTANCE PROGRAM  
TITLE XIX**

INCOME	December		Year to Date	
	1968	1967	1968	1967
A. Claims Income .....	\$77,919.82	\$14,593.82	\$679,444.19	\$14,593.82
B. Administrative Income .....	3,806.85	—0—	52,483.01	—0—
	<hr/>	<hr/>	<hr/>	<hr/>
TOTAL INCOME .....	\$81,726.67	\$14,593.82	\$731,927.20	\$14,593.82

**EXPENSE**

A. Claims Expense .....	\$78,097.43	\$11,458.02	\$682,875.39	\$11,458.02
B. Administration Expense .....	7,347.26	5,599.90	63,679.77	5,599.90
	<hr/>	<hr/>	<hr/>	<hr/>
TOTAL EXPENSE .....	\$85,444.69	\$17,057.92	\$746,555.16	\$17,057.92
% of Adm. Expense To Claims Expense .....	9.4%	48.9%	9.3%	48.9%

**ADMINISTRATIVE EXPENSE**

Salaries .....	\$ 3,352.13	\$ 1,352.61	\$ 34,296.66	\$ 2,857.39
Travel .....	—0—	240.62	769.27	240.62
Rent .....	433.00	54.38	5,097.00	108.76
Boards, Bureau & Assn. ....	44.64	—0—	319.59	—0—
Legal Expense .....	—0—	—0—	—0—	—0—
Furniture Depreciation .....	67.67	37.90	735.81	75.80
Equipment Rental .....	—0—	—0—	197.90	—0—
Printing & Stationery .....	—0—	—0—	398.65	422.63
Office Supplies .....	26.83	4.07	1,319.74	1,541.82
Books, Periodicals .....	—0—	—0—	8.28	—0—
Postage .....	189.48	53.90	1,770.74	57.31
Telephone .....	98.89	3.00	1,271.86	16.95
Wire System .....	—0—	—0—	—0—	—0—
Insurance .....	—0—	—0—	5.70	—0—
Employee Relations .....	914.94	26.17	2,683.77	110.04
Auditing .....	—0—	—0—	—0—	—0—
Pay to Service Agencies .....	2,004.51	—0—	12,643.79	—0—
Social Security .....	150.28	59.51	1,509.27	125.72
Board Meeting .....	—0—	—0—	—0—	—0—
Miscellaneous .....	—0—	—0—	—0—	—0—
Other Taxes .....	64.89	20.29	651.74	42.86
	<hr/>	<hr/>	<hr/>	<hr/>
NET OPERATING EXPENSE .....	\$ 7,347.26	\$ 1,852.45	\$ 63,679.77	\$ 5,599.90
	<hr/>	<hr/>	<hr/>	<hr/>



### **DISTINGUISHED SERVICE AWARD**

Started in 1951—T. F. Riggs, M.D., Pierre  
(deceased)  
1952—H. Russell Brown, M.D., Watertown  
1953—Guy Van Demark, M.D., Sioux Falls  
(deceased)  
1954—J. C. Ohlmacher, M.D., Vermillion  
(deceased)  
1955—R. G. Mayer, M.D., Aberdeen (deceased)  
1956—J. C. Ohlmacher, M.D., Vermillion  
(deceased)  
1957—W. E. Donahoe, M.D., Sioux Falls  
1958—Drs. J. C. Hagin, M. W. Pangburn (de-  
ceased), and James DeGeest, Miller  
1958—J. F. Brenckle, M.D., Superior, Wisc.  
(deceased)  
1958—Mrs. Agnes Holdridge, Madison  
1959—Walter L. Hard, Ph.D., Vermillion  
1959—Rev. and Mrs. Robert O. Bates, Sturgis  
1959—R. M. Kilgard, M.D., Watertown  
(deceased)  
1960—L. J. Pankow, M.D., Sioux Falls  
1961—Gregg M. Evans, Ph.D., Custer  
1962—Edwin Shaw, Ph.D., Vermillion  
1963—Arthur A. Lampert, M.D., Rapid City  
1964—John C. Foster, Phoenix, Arizona  
1965—A. P. Reding, M.D., Marion  
1966—Mrs. C. Rodney Stoltz, Watertown  
1967—Mrs. William Fish, Watertown  
1968—G. J. Bloemendaal, M.D., Ipswich  
1969—F. W. Haas, M.D., Yankton

### **FIFTY YEAR CLUB MEMBERS**

C. V. Auld, M.D., Plankinton (deceased)  
Myrtle Carney, M.D., Ft. Worth, Texas  
J. C. Clark, M.D., Sioux Falls (deceased)  
F. L. Class, M.D., Huron (deceased)  
M. E. Cogswell, M.D., Wolsey (deceased)  
J. Cook, M.D., Bonesteel (deceased)  
Harold L. Crane, M.D., Avon, Conn.  
S. A. Donahoe, M.D., Sioux Falls (deceased)  
W. E. Donahoe, M.D., Sioux Falls  
V. W. Embree, M.D., Pierre  
W. D. Farrell, M.D., Aberdeen (deceased)  
R. B. Fleeger, M.D., Lead (deceased)  
R. R. Fisk, M.D., Flandreau (deceased)  
F. W. Freyberg, M.D., Mitchell  
E. E. Gage, M.D., Sioux Falls (deceased)  
E. H. Grove, M.D., Arlington (deceased)  
Lyle Hare, M.D., Spearfish  
J. A. Hohf, M.D., Yankton (deceased)  
F. S. Howe, M.D., Deadwood (deceased)  
A. H. Hoyne, M.D., Salem (deceased)  
A. S. Jackson, M.D., Rapid City  
R. J. Jackson, M.D., Hot Springs (deceased)

J. A. Jacotel, M.D., Milbank (deceased)  
G. T. Jordan, M.D., Vermillion (deceased)  
F. F. Keene, M.D., Wessington Springs  
(deceased)  
G. W. Mills, M.D., Wall  
B. C. Murdy, M.D., Aberdeen (deceased)  
N. T. Owen, M.D., Rapid City (deceased)  
L. L. Parke, M.D., Canton  
M. O. Pemberton, M.D., Deadwood (deceased)  
R. J. Quinn, M.D., Sioux Falls  
T. B. Ranney, M.D., Aberdeen (deceased)  
T. F. Riggs, M.D., Pierre (deceased)  
H. L. Saylor, M.D., Huron (deceased)  
J. S. Tschetter, M.D., Huron  
F. W. Valkenaar, M.D., Chancellor  
G. E. Van Demark, M.D., Sioux Falls (deceased)  
H. P. Volin, M.D., Lennox  
C. H. Weishaar, M.D., Aberdeen (deceased)  
J. R. Westaby, M.D., Madison  
G. E. Zimmerman, M.D., Missoula, Montana

### **COMMUNITY SERVICE AWARD**

1961—R. A. Buchanan, M.D., Huron  
1962—Roland F. Hubner, M.D., Yankton  
1963—George W. Mills, M.D., Wall  
1964—John C. Hagin, M.D., Miller  
1965—Alonzo P. Peeke, M.D., Volga  
1966—Hugo C. Andre, M.D., Vermillion  
1967—G. Robert Bartron, M.D., Watertown  
1968—M. M. Morrissey, M.D., Pierre  
1969—N. J. Sundet, M.D., Kadoka

### **AESCULAPIUS AWARD**

1966—Paul R. Leon, M.D.  
Walter Miller, M.D., Aberdeen  
1968—H. Phil Gross, M.D., Sioux Falls

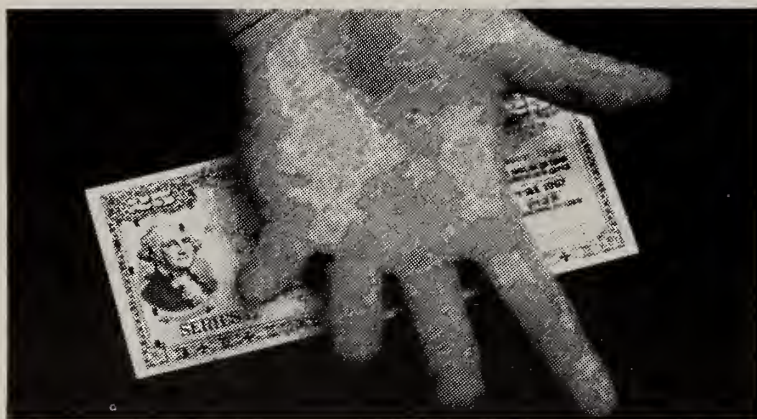
The South Dakota Heart Association in cooperation with the Heart Associations of Iowa, Kansas, Minnesota, Missouri, Nebraska and North Dakota is again sponsoring a Cardiovascular Symposium to be held at Iowa City, Iowa on September 19 and 20, 1969.

The first symposium sponsored by this group was held in Minneapolis in September of 1968. It was well received by over 300 physicians who attended.

For further information contact South Dakota Heart Association, Watertown.



# What if we told you to cough up \$18.75 or else?



You wouldn't like it, of course.

You see, one of the nice things about buying U.S. Savings Bonds is that you don't have to.

That's because you happen to live in a free country where nobody forces you to do anything.

Rather, your country asks that you simply consider the many advantages of Savings Bonds.

First of all, if you think they're a get-rich-quick scheme, forget it. Bonds aren't for you. They only pay off in the long haul. For a quick return, there are a lot better ways to make a buck.

They do pay off, however. Handsomely, as a matter of fact.

A little over 4 dollars for every 3 you invest. Plus, the privilege of buying the new 5% Freedom Shares along with your Bonds.

But these are the selfish reasons for buying Bonds.

Good, but selfish.

There's one other very important reason why Americans already own over \$52 billion in Bonds.

It's called pride.

It just so happens that most Americans still choose to think this is the best piece of real estate going.

If you happen to be one of these Americans who thinks there's something to this country of ours, why not buy into it.

Sign up for the Payroll Savings Plan where you work.

Or go to your bank.

And cough up that \$18.75.

Please.

## Take stock in America

Buy U.S. Savings Bonds & Freedom Shares



The U.S. Government does not pay for this advertisement. It is presented as a public service in cooperation with The Department of the Treasury and The Advertising Council.



## COMING CONFERENCES AT THE UNIVERSITY OF IOWA

September 19-20 Great Plains Regional Heart Meeting

October 3-4 Urology

October 17-18 General Practitioner's In-House Refresher

October 23-25 Surgery

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Physicians attending a Pediatrics Postgraduate Conference at The University of Iowa September 10 and 11 will learn more about cardiac examination and pediatric cardiac problems with the help of a cardiac simulator.

Conference registration forms and further information on the program and guest accommodations can be obtained by writing: Director of Postgraduate Education, The University of Iowa College of Medicine, 100 F Westlawn, Iowa City, Iowa, 52240.

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## MEETING ANNOUNCEMENT

The Division of Maternal and Child Health of the University of California School of Public Health at Berkeley announces the following postgraduate programs for pediatricians, obstetricians, and other physicians interested in receiving training in the field of Maternal and Child Health. These programs all lead to the degree of Master of Public Health. Tax-exempt fellowship support is available.

**Maternal and Child Health.** A 9-month program in planning, organizing and operating comprehensive health services for mothers and children.

**Family Planning.** A 9-month academic program providing intensive work in family planning as part of the general graduate preparation of maternal and child health specialists.

**School Health.** A 9-month academic program providing intensive work in school health as part of the general graduate preparation of maternal and child health specialists.

**The Multiply Handicapped and Mentally Retarded Child.** A 21-month academic and clinical program in planning, organizing, and operating community services for children with

multiple handicaps, including mental retardation.

**Career Development Programs.** Three-year academic and residency programs consisting of one year of academic training leading to the degree of Master of Public Health combined with residency training in Pediatrics or Obstetrics-Gynecology.

Applications are now being accepted for the group entering in July or September, 1970. For information, write to Helen M. Wallace, M.D., School of Public Health, University of California, Berkeley, California 94720.

The Department of Psychiatry, College of Medicine, University of Iowa, Iowa City, announces the availability of psychiatric residencies for physicians who have been in practice at least four years and are not over 45 years of age. Stipends are \$12,000 per year for three years and are supported by the Public Health Service. For information write Paul E. Huston, M.D., Head, Department of Psychiatry.

New Comfort for the Bedridden:  
**DURALAMB®**

**SHEEPSKIN BED PADS**

Prevent ulcers and bed sores, promote healing. Sheepskins are truly soft, absorbent, and minimize abrasion. They improve circulation, stay in place, allow air to circulate around body. Also try Duralamb Wheel Chair and Auxiliary Pads, Elbow Pads and Heel Booties.



The perfect Sheepskin Launderer  
**DIP 'n DRI**

Dip 'n Dri's bacteriostatic action counters bacteria build-up, and revitalizes sheepskins.



FOR ALL LEADING HOSPITAL AND  
SURGICAL SUPPLIES, SICKROOM  
NEEDS AND CONVALESCENT AIDS.



**KREISER SURGICAL, INC.**

Sioux Falls

Rapid City



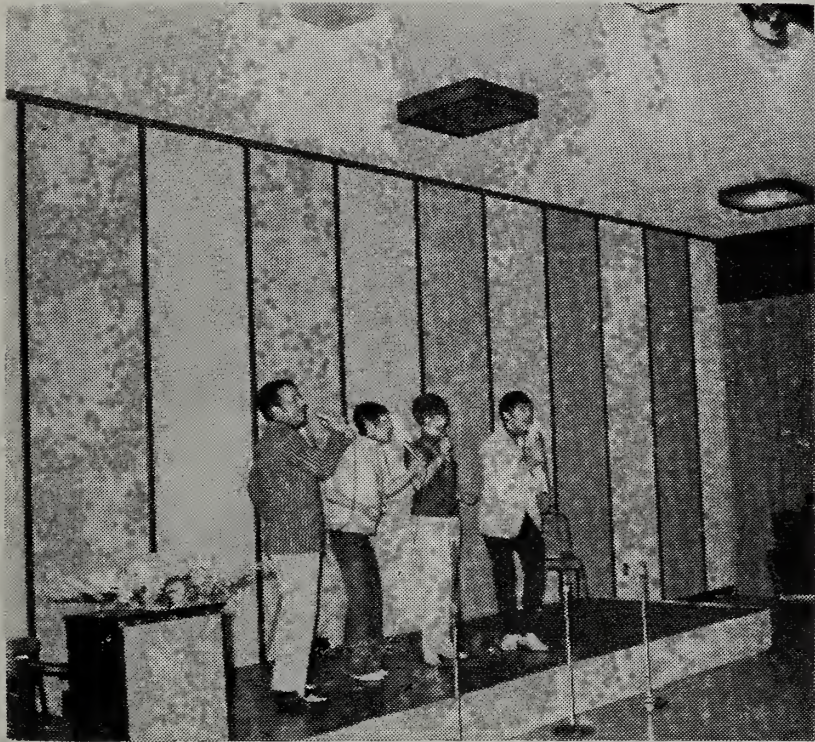
For elderly patients  
in need of a mild tranquilizer  
consider **Tybatran**<sup>®</sup>  
brand of tybamate

(When you consult  
the Prescribing Information  
you may agree  
it makes good sense)





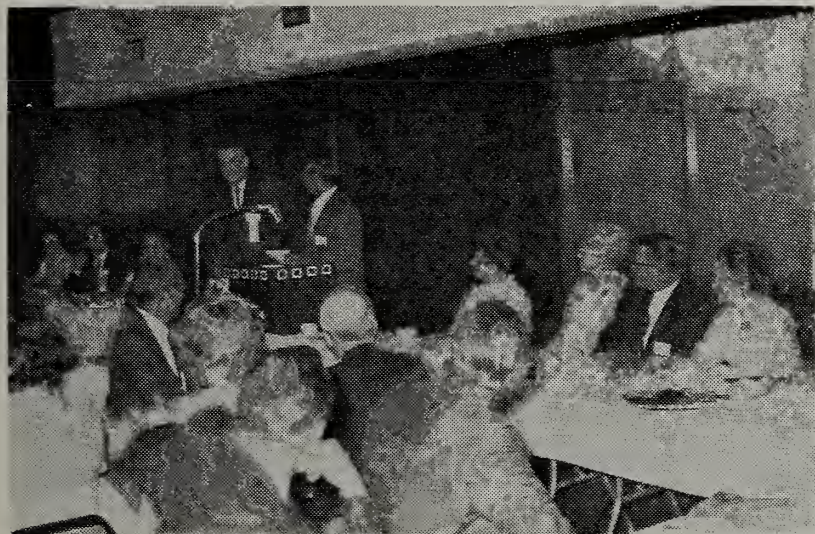
## ANNUAL MEETING HIGHLIGHTS



The "Roustabouts" did their thing



"A Successful Banquet"

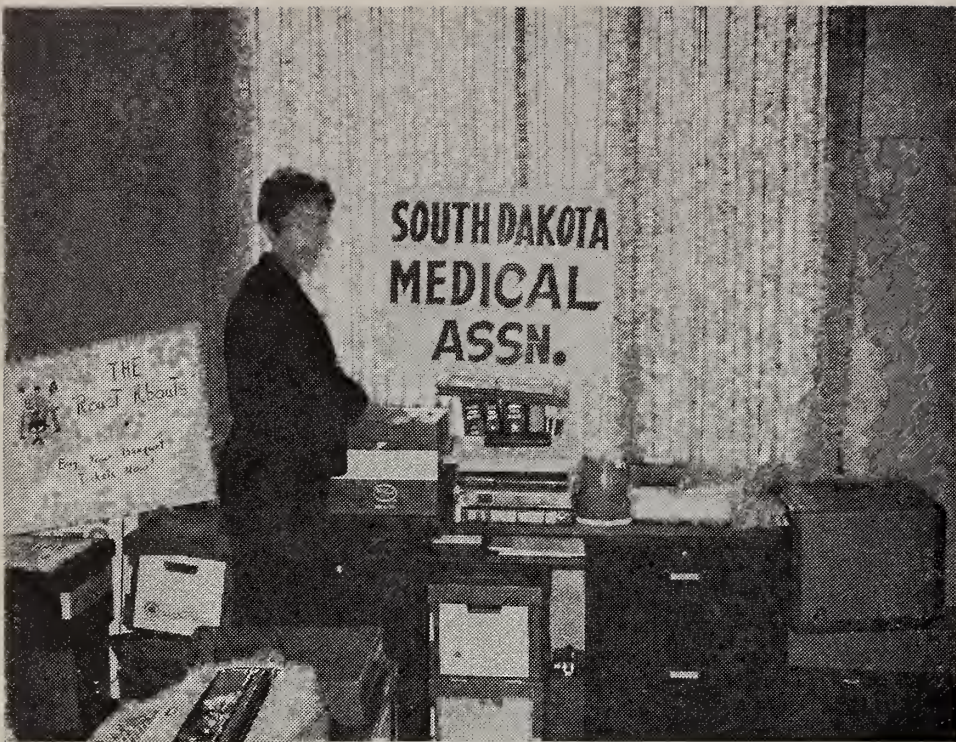


Dr. Quinn took over  
the reins from Dr. Elston



Dr. Sundet Receives  
"Community Service Award"





"The Staff is Ready To Go"



The "Council" in Action



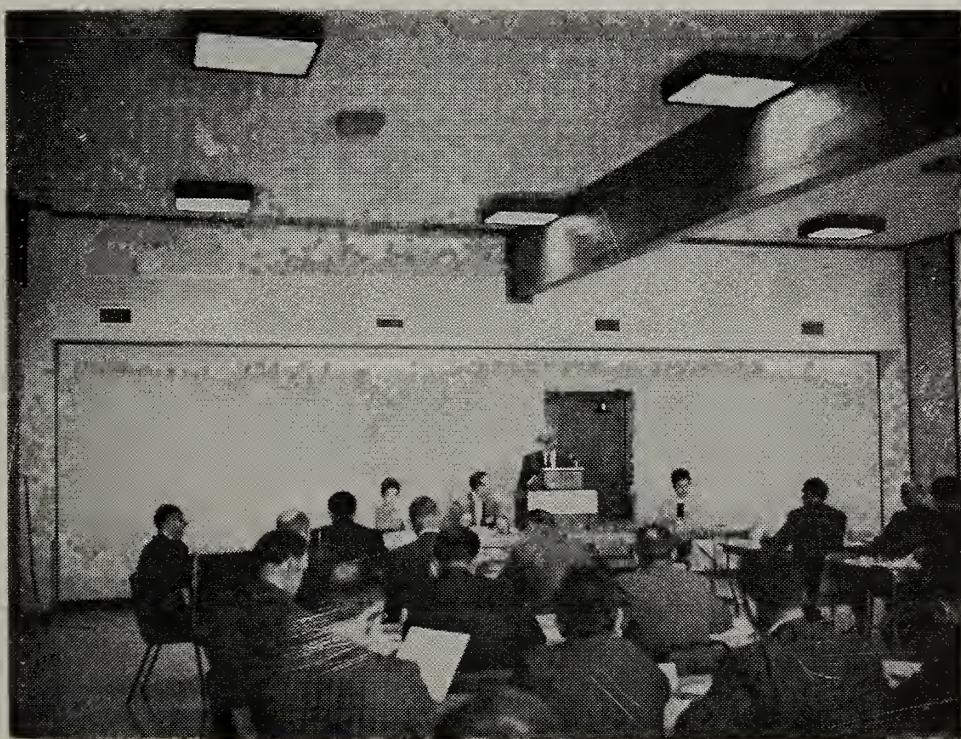
Budget & Audit Committee  
"It can't be that bad!"





Officers

"Who said being President is a snap?"



House of Delegates at Work





*Clues to  
PVD*

# The heavy smoker with vasospasm

He may be comparatively young or approaching middle age. Typically, he is a heavy cigarette smoker—a pack or more a day for a number of years. Whether smoking is a causative or an important exacerbating factor in peripheral vascular disease is still under discussion. But the vasoconstrictive effects of nicotine are firmly supported by a substantial body of laboratory and clinical evidence, and the close association is now generally accepted.

Thus, a history of heavy smoking coupled with vasospasm may serve as warning signals to the physician. When a diagnosis is established, therapeutic measures are directed toward increasing the local circulation, and appropriate management of the patient's general medical needs should be instituted. These include the important safeguards of keeping warm and refraining from smoking.



# South Dakota State Medical Association Roster — 1969

## Membership by Districts

### ABERDEEN DISTRICT No. 1

Pres., J. A. Eckrich, M.D.  
Sec., Karl Kosse, M.D.

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Avotins, R. \_\_\_\_\_ Faulkton  
Bloemendaal, G. J. \_\_\_\_\_ Ipswich  
Bormes, R. E. \_\_\_\_\_ Aberdeen  
Bormes, W. E. \_\_\_\_\_ Aberdeen  
Bostian, LeRoy \_\_\_\_\_ Aberdeen  
Bunker, P. G. \_\_\_\_\_ Aberdeen  
Bunker, Thomas \_\_\_\_\_ Aberdeen  
Calene, J. L. \_\_\_\_\_ Aberdeen  
Chavier, Juan R. \_\_\_\_\_ Aberdeen  
Collins, James \_\_\_\_\_ Hoven  
Damm, W. P. \_\_\_\_\_ Redfield  
deDianous, N., Jr. \_\_\_\_\_ Aberdeen  
Destache, Donald \_\_\_\_\_ Aberdeen  
DeWeese, Robert \_\_\_\_\_ Aberdeen  
Driver, I. \_\_\_\_\_ Aberdeen  
Eckrich, J. A. \_\_\_\_\_ Aberdeen

Eckrich, J. A., Jr. \_\_\_\_\_ Aberdeen  
Fahrenwald, M. \_\_\_\_\_ Redfield  
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Janusz, A. J. \_\_\_\_\_ Aberdeen  
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Kosse, Karl \_\_\_\_\_ Aberdeen  
Lautzenheiser, Nancy \_\_\_\_\_ Aberdeen  
Leon, Paul \_\_\_\_\_ Aberdeen  
MacDonough, H. J. \_\_\_\_\_ Aberdeen  
McCarthy, P. V. \_\_\_\_\_ Aberdeen  
McGee, R. C. \_\_\_\_\_ Aberdeen  
McIntosh, G. F. \_\_\_\_\_ Eureka  
Murdy, C. B. \_\_\_\_\_ Aberdeen  
Norgello, V. \_\_\_\_\_ Redfield

Odland, W. B. \_\_\_\_\_ Aberdeen  
Patterson, D. \_\_\_\_\_ Redfield  
Perry, E. J. \_\_\_\_\_ Redfield  
Rodine, J. C. \_\_\_\_\_ Aberdeen  
Rosa, S. \_\_\_\_\_ Redfield  
Rudolph, E. A. \_\_\_\_\_ Aberdeen  
Sanders, M. E. \_\_\_\_\_ Redfield  
Scheffel, A. \_\_\_\_\_ Redfield  
Seaman, David \_\_\_\_\_ Aberdeen  
Shousha, Albert \_\_\_\_\_ Britton  
Steele, G. H. \_\_\_\_\_ Aberdeen  
Sweeny, W. T. \_\_\_\_\_ Aberdeen  
Taylor, Wm. R. \_\_\_\_\_ Aberdeen  
Vogele, A. C. \_\_\_\_\_ Aberdeen  
Vogele, C. L. \_\_\_\_\_ Aberdeen  
Zvejnieks, K. \_\_\_\_\_ Aberdeen

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Sec., T. J. Wrage, Jr., M.D.

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Argabrite, J. W. \_\_\_\_\_ Watertown  
Auskaps, R. \_\_\_\_\_ Watertown  
Bartron, G. Robert \_\_\_\_\_ Watertown  
Bartron, H. J., Jr. \_\_\_\_\_ Watertown  
Brakss, V. \_\_\_\_\_ Watertown  
Brevik, A. K. \_\_\_\_\_ Watertown  
Brewster, C. B. \_\_\_\_\_ Watertown  
Brown, H. Russell \_\_\_\_\_ Watertown  
Clark, C. J. \_\_\_\_\_ Watertown

Fedt, D. \_\_\_\_\_ Watertown  
Gysin, M. W. \_\_\_\_\_ Watertown  
Heinrichs, E. H. \_\_\_\_\_ Watertown  
Heupel, Alden R. \_\_\_\_\_ Watertown  
Hughes, H. D. \_\_\_\_\_ Clear Lake  
Huppler, E. G. \_\_\_\_\_ Watertown  
Larson, James C. \_\_\_\_\_ Watertown  
Magtibay, M. \_\_\_\_\_ Bryant  
Michieli, Jose \_\_\_\_\_ Watertown  
Monson, D. G. \_\_\_\_\_ Watertown

Nelson, P. S. \_\_\_\_\_ Watertown  
Piro, David F. \_\_\_\_\_ Watertown  
Reul, T. \_\_\_\_\_ Watertown  
Rousseau, David \_\_\_\_\_ M.S.  
Rousseau, M. C. \_\_\_\_\_ Watertown  
Stoltz, C. R. \_\_\_\_\_ Watertown  
Stransky, J. J. \_\_\_\_\_ Watertown  
Tracy, G. E. \_\_\_\_\_ Watertown  
Willen, A. \_\_\_\_\_ Clark  
Wrage, T. J., Jr. \_\_\_\_\_ Watertown

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Friefeld, S. \_\_\_\_\_ Brookings  
Henry, Robert \_\_\_\_\_ Brookings  
Hura, R. \_\_\_\_\_ Howard  
Kershner, C. M. \_\_\_\_\_ Brookings  
Klar, W. \_\_\_\_\_ Flandreau

Lushbough, B. C. \_\_\_\_\_ Brookings  
McCabe, F. X. \_\_\_\_\_ Brookings  
Muggly, J. A. \_\_\_\_\_ Madison  
Otey, B. T. \_\_\_\_\_ Flandreau  
Patt, W. H. \_\_\_\_\_ Brookings  
Peeke, A. P. \_\_\_\_\_ Volga  
Plowman, E. T. \_\_\_\_\_ Brookings  
Reagan, J. L. \_\_\_\_\_ Madison  
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Scheller, D. L. \_\_\_\_\_ Arlington  
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Stensrud, H. J. \_\_\_\_\_ Madison  
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Watson, E. S. \_\_\_\_\_ Brookings  
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Wold, H. R. \_\_\_\_\_ Madison

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Fox, S. W. \_\_\_\_\_ Pierre  
Horthy, A. \_\_\_\_\_ Kennebec  
Horthy, K. \_\_\_\_\_ Kennebec

Jahraus, R. C. \_\_\_\_\_ Pierre  
Kumar, John S. \_\_\_\_\_ Gettysburg  
Lindbloom, B. O. \_\_\_\_\_ Pierre  
Morrissey, M. M. \_\_\_\_\_ Pierre  
Park, Dai H. \_\_\_\_\_ Pierre  
Spears, B. \_\_\_\_\_ Pierre

Sundet, N. J. \_\_\_\_\_ Kadoka  
Swanson, C. L. \_\_\_\_\_ Pierre  
Tieszen, A. J. \_\_\_\_\_ Pierre  
Van Heuvelen, G. J. \_\_\_\_\_ Pierre  
Werthman, H. E. \_\_\_\_\_ Pierre  
Zakahi, R. J. \_\_\_\_\_ Pierre

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Sec., Emil Hofer, M.D.

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Avots-Avotins, K. \_\_\_\_\_ Texas  
Bell, G. Robert \_\_\_\_\_ De Smet  
Buchanan, D. \_\_\_\_\_ Huron  
Buchanan, R. A. \_\_\_\_\_ Huron  
Charbonneau, Y. \_\_\_\_\_ Huron  
Dean, Roscoe \_\_\_\_\_ Wess. Springs  
DeGeest, J. H. \_\_\_\_\_ Miller  
Gryte, C. F. \_\_\_\_\_ Huron

\*Hagin, J. C. \_\_\_\_\_ Miller  
Hanson, Wm. O. \_\_\_\_\_ Huron  
Hofer, E. A. \_\_\_\_\_ Huron  
Hohm, P. \_\_\_\_\_ Huron  
Hohm, T. \_\_\_\_\_ Huron  
Huet, G. M. \_\_\_\_\_ Huron  
Karlen, L. W. \_\_\_\_\_ De Smet  
Kilpatrick, W. R. J. \_\_\_\_\_ Huron

Lardinois, C. C. \_\_\_\_\_ Huron  
Leigh, F. D. \_\_\_\_\_ Huron  
Lenz, B. T. \_\_\_\_\_ Huron  
Monfore, James \_\_\_\_\_ Miller  
Orgusaar, R. \_\_\_\_\_ Florida  
Saxton, W. H. \_\_\_\_\_ Huron  
Saylor, H. L., Jr. \_\_\_\_\_ Huron  
Tschetter, P. S. \_\_\_\_\_ Huron



# MITCHELL DISTRICT No. 6

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Sec., J. O. Judge, M.D.

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Binder, C. F. \_\_\_\_\_ Chamberlain  
Delaney, Robert \_\_\_\_\_ Mitchell  
Delaney, W. A., Jr. \_\_\_\_\_ Mitchell  
Erdmann, Ralph R. \_\_\_\_\_ Mitchell  
Gere, R. G. \_\_\_\_\_ Mitchell  
Gillis, F. D. \_\_\_\_\_ Mitchell  
Hockett, Richard \_\_\_\_\_ Mitchell  
Holland, L. W. \_\_\_\_\_ Chamberlain  
Judge, J. O. \_\_\_\_\_ Mitchell

Lewis, H. R. \_\_\_\_\_ Mitchell  
Lloyd, J. H. \_\_\_\_\_ Mitchell  
Loos, C. M. \_\_\_\_\_ Chamberlain  
\*Mabee, D. R. \_\_\_\_\_ Mitchell  
Mabee, J. O. \_\_\_\_\_ Mitchell  
Mabee, O. J. \_\_\_\_\_ Mitchell  
McCann, J. P. \_\_\_\_\_ Parkston  
Monson, C. D. \_\_\_\_\_ Parkston  
Mueller, E. H. \_\_\_\_\_ Tripp

Murphy, John T. \_\_\_\_\_ Mitchell  
Porter, M. H. \_\_\_\_\_ Parkston  
Skogmo, B. R. \_\_\_\_\_ Mitchell  
Tobin, F. J. \_\_\_\_\_ Mitchell  
Tobin, L. W. \_\_\_\_\_ Mitchell  
Vonburg, V. R. \_\_\_\_\_ Mitchell  
Vose, J. L. \_\_\_\_\_ Mitchell  
Weatherill, D. W. \_\_\_\_\_ Mitchell  
Weber, R. A. \_\_\_\_\_ Mitchell

# SIoux FALLS DISTRICT No. 7

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Sec., J. B. Gregg, M.D.  
Treas., R. R. Giebink, M.D.

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Alcorn, F. A. \_\_\_\_\_ Sioux Falls  
Amundson, Loren \_\_\_\_\_ Sioux Falls  
Anderson, C. \_\_\_\_\_ Sioux Falls  
Anderson, T. R. \_\_\_\_\_ Sioux Falls  
Anderson, W. R. \_\_\_\_\_ Sioux Falls  
Angelos, T. \_\_\_\_\_ Canton  
Arneson, W. A. \_\_\_\_\_ Sioux Falls  
Aspaas, P. K. \_\_\_\_\_ Dell Rapids  
Barlow, J. F. \_\_\_\_\_ Sioux Falls  
Barnett, G. L. \_\_\_\_\_ Sioux Falls  
Becker, S. \_\_\_\_\_ Sioux Falls  
Begley, B. J. \_\_\_\_\_ Sioux Falls  
Billion, T. J., Jr. \_\_\_\_\_ Sioux Falls  
Breit, D. H. \_\_\_\_\_ Sioux Falls  
Brzica, S. M. \_\_\_\_\_ Sioux Falls  
Burns, E. A. \_\_\_\_\_ Sioux Falls  
Burns, K. R. \_\_\_\_\_ Sioux Falls  
\*Carney, M. \_\_\_\_\_ Texas  
Chalmers, J. H. \_\_\_\_\_ Sioux Falls  
Chipman, Martin \_\_\_\_\_ Sioux Falls  
Church, W. G. \_\_\_\_\_ Sioux Falls  
Cornford, R. C. \_\_\_\_\_ Sioux Falls  
\*Cottam, G. I. W. \_\_\_\_\_ Sioux Falls  
Cutshall, V. H. \_\_\_\_\_ Sioux Falls  
Cutshall, V. K. \_\_\_\_\_ Sioux Falls  
Daggett, James \_\_\_\_\_ Lennox  
Daw, E. F. \_\_\_\_\_ Sioux Falls  
de Marco, Lynn \_\_\_\_\_ Sioux Falls  
Devick, J. C. \_\_\_\_\_ Colton  
Donahoe, J. W. \_\_\_\_\_ Sioux Falls  
Donahoe, R. R. \_\_\_\_\_ Sioux Falls  
\*Donahoe, W. E. \_\_\_\_\_ Sioux Falls  
Duimstra, Fred \_\_\_\_\_ Sioux Falls  
Eirinberg, I. \_\_\_\_\_ Sioux Falls  
Elkjer, Neil J. \_\_\_\_\_ Sioux Falls  
Ensberg, D. \_\_\_\_\_ Sioux Falls  
Entwistle, F. R. \_\_\_\_\_ Sioux Falls  
Epp, D. \_\_\_\_\_ Freeman  
Ericksen, E. G. \_\_\_\_\_ Sioux Falls  
Farrell, H. W. \_\_\_\_\_ Sioux Falls  
Felker, James \_\_\_\_\_ Sioux Falls  
Ferrell, M. R. \_\_\_\_\_ Sioux Falls  
Fisk, R. G. \_\_\_\_\_ Dell Rapids  
Frost, D. M. \_\_\_\_\_ Sioux Falls

Giebink, R. R. \_\_\_\_\_ Sioux Falls  
\*Green, R. D. \_\_\_\_\_ Sioux Falls  
Greenfield, D. \_\_\_\_\_ Sioux Falls  
Greenfield, R. E. \_\_\_\_\_ Sioux Falls  
Gregg, J. B. \_\_\_\_\_ Sioux Falls  
Gross, H. Phil \_\_\_\_\_ Sioux Falls  
\*Grove, M. S. \_\_\_\_\_ Sioux Falls  
Hansen, H. F. \_\_\_\_\_ Sioux Falls  
Hosen, R. S. \_\_\_\_\_ Sioux Falls  
Hoskins, J. H. \_\_\_\_\_ Sioux Falls  
Hoskins, John \_\_\_\_\_ M.S.  
Ihle, C. W. \_\_\_\_\_ Sioux Falls  
Jameson, G. M. \_\_\_\_\_ Sioux Falls  
Janis, J. B. \_\_\_\_\_ Sioux Falls  
Jones, W. L. \_\_\_\_\_ Sioux Falls  
Kaufman, I. I. \_\_\_\_\_ Freeman  
Kaul, Lothar \_\_\_\_\_ Sioux Falls  
\*Keller, S. A. \_\_\_\_\_ California  
Kemper, C. E. \_\_\_\_\_ Viborg  
King, L. M. \_\_\_\_\_ Sioux Falls  
Kittelson, H. O. \_\_\_\_\_ Sioux Falls  
Knowles, R. C. \_\_\_\_\_ Sioux Falls  
Kohlmeyer, F. C. \_\_\_\_\_ Sioux Falls  
Lakstigala, P. \_\_\_\_\_ Sioux Falls  
Lang, Durward \_\_\_\_\_ Sioux Falls  
Larson, C. S. \_\_\_\_\_ Sioux Falls  
Larson, Leland J. \_\_\_\_\_ Sioux Falls  
Leander, R. B. \_\_\_\_\_ Sioux Falls  
Leraan, L. G. \_\_\_\_\_ Sioux Falls  
Lie, Dagfinn \_\_\_\_\_ Sioux Falls  
Lietzke, E. T. \_\_\_\_\_ Beresford  
Manning, D. H. \_\_\_\_\_ Sioux Falls  
Maresh, E. R. \_\_\_\_\_ Sioux Falls  
Mattice, Lloyd \_\_\_\_\_ Sioux Falls  
Moller, C. \_\_\_\_\_ Dell Rapids  
Mutch, M. J. \_\_\_\_\_ Sioux Falls  
McDonald, C. J. \_\_\_\_\_ Sioux Falls  
McGreevy, E. J. \_\_\_\_\_ Sioux Falls  
McGreevy, J. V. \_\_\_\_\_ Sioux Falls  
McHardy, B. R. \_\_\_\_\_ Sioux Falls  
Nelson, Earl \_\_\_\_\_ Viborg  
\*Nelson, J. A. \_\_\_\_\_ California  
Nelson, R. E. \_\_\_\_\_ Sioux Falls  
Ochsner, J. A. \_\_\_\_\_ Sioux Falls  
Ogborn, R. J. \_\_\_\_\_ Sioux Falls

Ohrt, D. E. \_\_\_\_\_ Sioux Falls  
Olson, R. G. \_\_\_\_\_ Sioux Falls  
Opheim, W. L. \_\_\_\_\_ Sioux Falls  
Orr, R. T. \_\_\_\_\_ Sioux Falls  
Ortmeier, Denny \_\_\_\_\_ Sioux Falls  
\*Pankow, L. J. \_\_\_\_\_ Sioux Falls  
\*Parke, L. L. \_\_\_\_\_ Canton  
Pasek, E. A. \_\_\_\_\_ Sioux Falls  
Peik, D. J. \_\_\_\_\_ Sioux Falls  
Petereit, M. F. \_\_\_\_\_ Sioux Falls  
Peters, E. H. \_\_\_\_\_ Sioux Falls  
Petres, A. \_\_\_\_\_ Salem  
Pitt-Hart, Barry T. \_\_\_\_\_ Sioux Falls  
Quinn, R. H. \_\_\_\_\_ Sioux Falls  
\*Quinn, R. J. \_\_\_\_\_ Sioux Falls  
Reagan, P. R. \_\_\_\_\_ Sioux Falls  
Rossing, W. O. \_\_\_\_\_ Sioux Falls  
Salmon, Don \_\_\_\_\_ Sioux Falls  
Sanderson, E. W. \_\_\_\_\_ Sioux Falls  
Schultz, R. D. \_\_\_\_\_ Sioux Falls  
Sercl, W. \_\_\_\_\_ Sioux Falls  
Shaeffer, J. H. \_\_\_\_\_ Sioux Falls  
Shreves, H. \_\_\_\_\_ Sioux Falls  
Smith, G. W. \_\_\_\_\_ Sioux Falls  
Soukup, Victor J. \_\_\_\_\_ Sioux Falls  
Stahmann, F. \_\_\_\_\_ Sioux Falls  
Steiner, P. K. \_\_\_\_\_ Sioux Falls  
Stern, C. A. \_\_\_\_\_ California  
Strauss, B. \_\_\_\_\_ Parker  
Sweeney, L. J. \_\_\_\_\_ Sioux Falls  
Tam, Guy \_\_\_\_\_ Sioux Falls  
Tschetter, R. T. \_\_\_\_\_ Sioux Falls  
Tuohy, Gerald F. \_\_\_\_\_ Sioux Falls  
Van Demark, R. E. \_\_\_\_\_ Sioux Falls  
Villa, Jose \_\_\_\_\_ Freeman  
\*Volin, H. P. \_\_\_\_\_ Lennox  
Volin, V. V. \_\_\_\_\_ Sioux Falls  
Wagner, Loyd \_\_\_\_\_ Sioux Falls  
Waltner, Lonnie \_\_\_\_\_ Bridgewater  
Wegner, K. H. \_\_\_\_\_ Sioux Falls  
Wessman, N. E. \_\_\_\_\_ Sioux Falls  
Williams, B. J. \_\_\_\_\_ Sioux Falls  
Williams, M. F. \_\_\_\_\_ Minnesota  
Wingert, Marvin \_\_\_\_\_ Garretson  
Zandersons, V. \_\_\_\_\_ Parker  
\*Zimmerman, Goldie E. \_\_\_\_\_ Missoula, Montana

# YANKTON DISTRICT No. 8

Pres., Lawrence Savage, M.D.  
Sec., L. G. Behan, M.D.  
Treas., James K. Jackson, M.D.

Abts, F. J. \_\_\_\_\_ Yankton  
Auld, Marian \_\_\_\_\_ Yankton  
Auld, M. A. \_\_\_\_\_ Yankton  
Behan, Lawrence \_\_\_\_\_ Yankton  
Berg, S. \_\_\_\_\_ Scotland  
Foley, R. J. \_\_\_\_\_ Tyndall  
Grover, W. W. \_\_\_\_\_ Bondeul, Wisc.  
\*Haas, F. W. \_\_\_\_\_ Yankton  
Hayes, R. H. \_\_\_\_\_ Vermillion  
Herbrandson, C. R. \_\_\_\_\_ Vermillion  
Herzog, B. F. \_\_\_\_\_ Yankton  
\*Hill, J. F. \_\_\_\_\_ Yankton  
Honke, R. W. \_\_\_\_\_ Wagner  
Hubner, R. F. \_\_\_\_\_ Yankton  
Jackson, J. K. \_\_\_\_\_ Yankton

Johnson, C. F. \_\_\_\_\_ Yankton  
Kalda, E. F. \_\_\_\_\_ Platte  
Kleinsasser, G. \_\_\_\_\_ Scotland  
Knabe, G. W. \_\_\_\_\_ Vermillion  
Lyso, M. \_\_\_\_\_ Yankton  
McVay, C. B. \_\_\_\_\_ Yankton  
Michael, Amos \_\_\_\_\_ Indiana  
Moore, E. J. \_\_\_\_\_ Vermillion  
Muckala, Kenneth \_\_\_\_\_ Vermillion  
Porter, Richard I. \_\_\_\_\_ Yankton  
Price, Ronald \_\_\_\_\_ Armour  
Radack, Morris \_\_\_\_\_ Yankton  
Ranney, B. \_\_\_\_\_ Yankton  
Reade, D. M. \_\_\_\_\_ Yankton  
Reaney, D. B. \_\_\_\_\_ Yankton

Reding, A. P. \_\_\_\_\_ Marion  
Riesberg, E. \_\_\_\_\_ Yankton  
Ryan, C. F. \_\_\_\_\_ New Mexico  
Saoi, N. B. \_\_\_\_\_ Yankton  
Sattler, T. H. \_\_\_\_\_ Yankton  
Savage, L. \_\_\_\_\_ Yankton  
Sebring, F. U. \_\_\_\_\_ Vermillion  
Stanage, W. F. \_\_\_\_\_ Yankton  
Steele, J. P. \_\_\_\_\_ Yankton  
Thompson, R. F. \_\_\_\_\_ Yankton  
Thornton, R. R. \_\_\_\_\_ Yankton  
Tidd, J. T. \_\_\_\_\_ Yankton  
Turner, C. R. \_\_\_\_\_ Vermillion  
Willcockson, T. H. \_\_\_\_\_ Yankton



# **BLACK HILLS DISTRICT No. 9**

Pres., H. O. Haugan, M.D.  
Sec., Russell Harris, M.D.

Ahrlin, H. L. \_\_\_\_\_ Rapid City  
Allen, Bruce \_\_\_\_\_ Rapid City  
Anderson, A. B. \_\_\_\_\_ Lead  
Angelos, G. \_\_\_\_\_ Hot Springs  
Bailey, J. D. \_\_\_\_\_ Rapid City  
Bareis, R. J. \_\_\_\_\_ Rapid City  
Behrens, C. L. \_\_\_\_\_ Rapid City  
Blake, Charles A. \_\_\_\_\_ Rapid City  
Blunck, C. J. \_\_\_\_\_ Rapid City  
Borgmeyer, H. J. \_\_\_\_\_ Rapid City  
Boyce, R. A. \_\_\_\_\_ Rapid City  
Bray, R. B. \_\_\_\_\_ Rapid City  
Cameron, D. E. \_\_\_\_\_ Rapid City  
Carson, L. E. \_\_\_\_\_ Lead  
\*Chassell, J. L. \_\_\_\_\_ Belle Fourche  
Chu, C. L. \_\_\_\_\_ Illinois  
Clark, B. S. \_\_\_\_\_ Spearfish  
Cline, J. A. \_\_\_\_\_ Rapid City  
Cowan, L. K. \_\_\_\_\_ Rapid City  
\*Crane, H. L. \_\_\_\_\_ Avon, Conn.  
Crowder, R. \_\_\_\_\_ Rapid City  
Davidson, H. E. \_\_\_\_\_ Ft. Meade  
Dulaney, C. H. \_\_\_\_\_ Ft. Meade  
Dzintars, P. F. \_\_\_\_\_ Rapid City  
Elston, J. T. \_\_\_\_\_ Rapid City  
Feehan, J. J. \_\_\_\_\_ Rapid City  
Finley, R. C. \_\_\_\_\_ Rapid City  
Freimark, L. G. \_\_\_\_\_ Rapid City  
Fromm, H. E. \_\_\_\_\_ Rapid City  
Frost, H. L. \_\_\_\_\_ Rapid City

Geib, W. A. \_\_\_\_\_ Rapid City  
Golliher, W. N. \_\_\_\_\_ Spearfish  
Gwinn, C. B. \_\_\_\_\_ Rapid City  
Hamm, J. N. \_\_\_\_\_ Sturgis  
Hare, H. J. \_\_\_\_\_ Rapid City  
\*Hare, Lyle \_\_\_\_\_ Spearfish  
Harris, R. H. \_\_\_\_\_ Rapid City  
Haugan, H. O. \_\_\_\_\_ Rapid City  
Hewitt, J. M. \_\_\_\_\_ Rapid City  
Hofmann, A. R. \_\_\_\_\_ Rapid City  
\*Jackson, A. S. \_\_\_\_\_ Rapid City  
Jacobson, T. R. \_\_\_\_\_ Hot Springs  
Jatoi, A. M. \_\_\_\_\_ Deadwood  
Johnson, Robert K. \_\_\_\_\_ Rapid City  
Jones, W. E. \_\_\_\_\_ Sturgis  
Kegaries, D. L. \_\_\_\_\_ Rapid City  
Koren, Paul \_\_\_\_\_ Rapid City  
Kovarik, R. A. \_\_\_\_\_ Rapid City  
Kovarik, W. J. \_\_\_\_\_ Rapid City  
Kunz, J. A. \_\_\_\_\_ Rapid City  
Kwan, F. P. \_\_\_\_\_ Rapid City  
Lampert, A. A. \_\_\_\_\_ Rapid City  
Langenfeld, M. G. \_\_\_\_\_ Spearfish  
Lydiatt, J. \_\_\_\_\_ Hot Springs  
Mangulis, G. \_\_\_\_\_ Philip  
Marousek, M. \_\_\_\_\_ Belle Fourche  
Mattox, J. E. \_\_\_\_\_ Deadwood  
Mead, T. \_\_\_\_\_ Spearfish  
Merryman, M. P. \_\_\_\_\_ Rapid City  
Millea, R. P. \_\_\_\_\_ Rapid City

\*Mills, G. W. \_\_\_\_\_ Wall  
Munson, H. B. \_\_\_\_\_ Rapid City  
Murphy, J. C. \_\_\_\_\_ Hot Springs  
Natarajan, R. \_\_\_\_\_ Rapid City  
\*O'Toole, T. F. \_\_\_\_\_ Rapid City  
Owen, G. S. \_\_\_\_\_ Rapid City  
Palmerton, E. S. \_\_\_\_\_ Rapid City  
Paulson, G. \_\_\_\_\_ Rapid City  
Pokorny, J. F. \_\_\_\_\_ Newell  
\*Radusch, F. J. \_\_\_\_\_ Rapid City  
Roman, T. P. \_\_\_\_\_ Martin  
Roper, C. E. \_\_\_\_\_ Hot Springs  
Ruud, E. T. \_\_\_\_\_ Rapid City  
\*Salladay, I. R. \_\_\_\_\_ Pierre  
Saxton, A. J. \_\_\_\_\_ Kansas  
Sejvar, J. P. \_\_\_\_\_ Lead  
Semones, A., Jr. \_\_\_\_\_ Lead  
Slingsby, J. B. \_\_\_\_\_ Rapid City  
Smiley, J. C. \_\_\_\_\_ Deadwood  
Swisher, L. P. \_\_\_\_\_ Kadoka  
Tesar, C. E. \_\_\_\_\_ Rapid City  
Theissen, H. H. \_\_\_\_\_ Rapid City  
Walton, J. \_\_\_\_\_ Martin  
Westaby, R. S., Jr. \_\_\_\_\_ Rapid City  
Whitney, N. R. \_\_\_\_\_ Rapid City  
Williams, F. R. \_\_\_\_\_ Rapid City  
Wood, G. F. \_\_\_\_\_ Rapid City  
Yackley, J. V. \_\_\_\_\_ Rapid City  
Zanka, J. A. \_\_\_\_\_ Rapid City

# **ROSEBUD DISTRICT No. 10**

Pres., M. R. Cosand, M.D.

Cosand, M. R. \_\_\_\_\_ Winner  
Nemer, R. G. \_\_\_\_\_ Gregory

Stiehl, R. \_\_\_\_\_ Winner  
Studenberg, D. \_\_\_\_\_ Gregory

Sweet, E. P. \_\_\_\_\_ Burke

# **NORTHWEST DISTRICT No. 11**

Pres., Gus Torkildson, M.D.  
Sec., B. P. Nolan, M.D.

Johnson, C. A. \_\_\_\_\_ Lemmon  
Linde, Leonard \_\_\_\_\_ Mobridge  
Lowe, Harold \_\_\_\_\_ Mobridge

Nolan, B. P. \_\_\_\_\_ Mobridge  
Ryan, J. E. \_\_\_\_\_ Mobridge  
Spiry, A. W. \_\_\_\_\_ Mobridge

Torkildson, G. \_\_\_\_\_ McLaughlin  
Totten, F. C. \_\_\_\_\_ Lemmon

# **WHETSTONE VALLEY DISTRICT No. 12**

Sec., Joseph Kass, M.D.

Batt, E. J. \_\_\_\_\_ Sisseton  
Brauer, H. H. \_\_\_\_\_ Sisseton  
Brinkman, W. C. \_\_\_\_\_ Sisseton  
Czajkowskyj, R. \_\_\_\_\_ Veblen  
Czajkowskyj, T. \_\_\_\_\_ Veblen

Gregory, D. A. \_\_\_\_\_ Milbank  
Janavs, V. \_\_\_\_\_ Milbank  
Johnson, E. A. \_\_\_\_\_ Milbank  
Judge, W. T. \_\_\_\_\_ Milbank  
Kass, Joseph \_\_\_\_\_ Rosholt

Karlins, W. H. \_\_\_\_\_ Webster  
Keller, L. W. \_\_\_\_\_ Wisconsin  
Lovering, J. \_\_\_\_\_ Sisseton  
Vogelgesang, L. C. \_\_\_\_\_ Webster

M.S.—Indicates Military Service

\*—Indicates Honorary Membership



# South Dakota State Medical Association Roster — 1969

## Membership — Alphabetical Listing

Abts, F. J. \_\_\_\_\_ Yankton  
 Adams, H. P. \_\_\_\_\_ Huron  
 Ahrlin, H. L. \_\_\_\_\_ Rapid City  
 Akland, L. R. \_\_\_\_\_ Madagascar  
 Alcorn, F. A. \_\_\_\_\_ Sioux Falls  
 Allen, Bruce \_\_\_\_\_ Rapid City  
 Allen, S. W. \_\_\_\_\_ Watertown  
 \*Alway, J. D. \_\_\_\_\_ Arizona  
 Amundson, Loren \_\_\_\_\_ Sioux Falls  
 Anderson, A. B. \_\_\_\_\_ Lead  
 Anderson, C. Wm. \_\_\_\_\_ Sioux Falls  
 Anderson, J. A. \_\_\_\_\_ Madison  
 Anderson, T. R. \_\_\_\_\_ Sioux Falls  
 Anderson, W. R. \_\_\_\_\_ Sioux Falls  
 Angelos, G. \_\_\_\_\_ Hot Springs  
 Angelos, T. \_\_\_\_\_ Canton  
 Arbon, R. K. \_\_\_\_\_ Lake Preston  
 Argabrite, J. W. \_\_\_\_\_ Watertown  
 Arneson, W. A. \_\_\_\_\_ Sioux Falls  
 Askwig, L. C. \_\_\_\_\_ Pierre  
 Aspaas, P. K. \_\_\_\_\_ Dell Rapids  
 Auld, Marian \_\_\_\_\_ Yankton  
 Auld, M. A. \_\_\_\_\_ Yankton  
 Auskaps, R. \_\_\_\_\_ Watertown  
 Avots-Avotins, K. \_\_\_\_\_ Texas  
 Avotins, R. \_\_\_\_\_ Faulkton  
 Bailey, J. D. \_\_\_\_\_ Rapid City  
 Bareis, R. J. \_\_\_\_\_ Rapid City  
 Barlow, J. F. \_\_\_\_\_ Sioux Falls  
 Barnett, G. L. \_\_\_\_\_ Sioux Falls  
 Bartron, G. R. \_\_\_\_\_ Watertown  
 Bartron, H. J., Jr. \_\_\_\_\_ Watertown  
 Batt, E. J. \_\_\_\_\_ Sisseton  
 Becker, S. F. \_\_\_\_\_ Sioux Falls  
 Begley, B. J. \_\_\_\_\_ Sioux Falls  
 Behan, L. G. \_\_\_\_\_ Yankton  
 Behrens, C. L. \_\_\_\_\_ Rapid City  
 Belatti, R. G. \_\_\_\_\_ Madison  
 Bell, G. Robert \_\_\_\_\_ De Smet  
 Berg, S. \_\_\_\_\_ Scotland  
 Berry, J. T. \_\_\_\_\_ Mitchell  
 Billion, T. J., Jr. \_\_\_\_\_ Sioux Falls  
 Binder, C. F. \_\_\_\_\_ Chamberlain  
 Blake, C. A. \_\_\_\_\_ Rapid City  
 Bloemendaal, G. J. \_\_\_\_\_ Ipswich  
 Blunck, C. F. \_\_\_\_\_ Rapid City  
 Borgmeyer, H. J. \_\_\_\_\_ Rapid City  
 Bormes, R. E. \_\_\_\_\_ Aberdeen  
 Bormes, W. E. \_\_\_\_\_ Aberdeen  
 Bostian, Leroy \_\_\_\_\_ Aberdeen  
 Boyce, R. A. \_\_\_\_\_ Rapid City  
 Brakss, V. \_\_\_\_\_ Watertown  
 Brauer, H. H. \_\_\_\_\_ Sisseton  
 Bray, R. B. \_\_\_\_\_ Rapid City  
 Breit, D. H. \_\_\_\_\_ Sioux Falls  
 Brevik, A. K. \_\_\_\_\_ Watertown  
 Brewster, C. B. \_\_\_\_\_ Watertown  
 Brinkman, W. C. \_\_\_\_\_ Sisseton  
 Brown, H. R. \_\_\_\_\_ Watertown  
 Brzica, S. M. \_\_\_\_\_ Sioux Falls  
 Buchanan, D. \_\_\_\_\_ Huron  
 Buchanan, R. A. \_\_\_\_\_ Huron  
 Bunker, P. G. \_\_\_\_\_ Aberdeen  
 Bunker, Thomas \_\_\_\_\_ Aberdeen  
 Burns, E. A. \_\_\_\_\_ Sioux Falls  
 Burns, K. R. \_\_\_\_\_ Sioux Falls  
 Calene, J. L. \_\_\_\_\_ Aberdeen  
 Cameron, D. E. \_\_\_\_\_ Rapid City  
 \*Carney, M. \_\_\_\_\_ Ft. Worth, Texas  
 Carson, L. E. \_\_\_\_\_ Lead  
 Chalmers, J. H. \_\_\_\_\_ Sioux Falls  
 Charbonneau, Y. H. \_\_\_\_\_ Huron  
 \*Chassell, J. L. \_\_\_\_\_ Belle Fourche  
 Chavier, J. R. \_\_\_\_\_ Aberdeen  
 Chipman, M. \_\_\_\_\_ Sioux Falls  
 Chu, C. L. \_\_\_\_\_ Illinois  
 Church, Bill G. \_\_\_\_\_ Sioux Falls  
 Clark, B. S. \_\_\_\_\_ Spearfish  
 Clark, C. J. \_\_\_\_\_ Watertown

Cline, J. A. \_\_\_\_\_ Rapid City  
 Collins, E. H. \_\_\_\_\_ Gettysburg  
 Collins, James \_\_\_\_\_ Hoven  
 Cornford, R. C. \_\_\_\_\_ Sioux Falls  
 Cosand, M. R. \_\_\_\_\_ Winner  
 \*Cottam, G. I. W. \_\_\_\_\_ Sioux Falls  
 Cowan, J. T. \_\_\_\_\_ Pierre  
 Cowan, L. K. \_\_\_\_\_ Rapid City  
 \*Crane, H. L. \_\_\_\_\_ Connecticut  
 Crowder, R. R. \_\_\_\_\_ Rapid City  
 Cutshall, V. H. \_\_\_\_\_ Sioux Falls  
 Cutshall, V. K. \_\_\_\_\_ Sioux Falls  
 Czajkowskyj, Ruth \_\_\_\_\_ Veblen  
 Czajkowskyj, T. \_\_\_\_\_ Veblen  
 Daggett, James \_\_\_\_\_ Lennox  
 Damm, W. P. \_\_\_\_\_ Redfield  
 Davidson, H. E. \_\_\_\_\_ Ft. Meade  
 \*Davidson, M. \_\_\_\_\_ Brookings  
 Daw, E. F. \_\_\_\_\_ Sioux Falls  
 Dean, Roscoe \_\_\_\_\_ Wess. Springs  
 deDianous, N., Jr. \_\_\_\_\_ Aberdeen  
 De Geest, J. H. \_\_\_\_\_ Miller  
 Delaney, R. J. \_\_\_\_\_ Mitchell  
 Delaney, W. A., Jr. \_\_\_\_\_ Mitchell  
 de Marco, Lynn \_\_\_\_\_ Sioux Falls  
 Destache, Donald \_\_\_\_\_ Aberdeen  
 Devick, J. S. \_\_\_\_\_ Colton  
 DeWeese, Robert \_\_\_\_\_ Aberdeen  
 Donahoe, J. W. \_\_\_\_\_ Sioux Falls  
 Donahoe, R. R. \_\_\_\_\_ Sioux Falls  
 \*Donahoe, W. E. \_\_\_\_\_ Sioux Falls  
 Driver, I. E. \_\_\_\_\_ Aberdeen  
 Duimstra, Fred \_\_\_\_\_ Sioux Falls  
 Dulaney, C. H. \_\_\_\_\_ Ft. Meade  
 Dzintars, P. F. \_\_\_\_\_ Rapid City  
 Eckrich, J. A. \_\_\_\_\_ Aberdeen  
 Eckrich, J. A., Jr. \_\_\_\_\_ Aberdeen  
 Eirinberg, I. \_\_\_\_\_ Sioux Falls  
 Elkjer, N. J. \_\_\_\_\_ Sioux Falls  
 Elston, J. T. \_\_\_\_\_ Rapid City  
 Ensberg, D. L. \_\_\_\_\_ Sioux Falls  
 Entwistle, F. R. \_\_\_\_\_ Sioux Falls  
 Epp, D. L. \_\_\_\_\_ Freeman  
 Erdmann, R. R. \_\_\_\_\_ Mitchell  
 Ericksen, E. G. \_\_\_\_\_ Sioux Falls  
 Fahrenwald, M. \_\_\_\_\_ Redfield  
 Farrell, H. W. \_\_\_\_\_ Sioux Falls  
 Fedt, Donald \_\_\_\_\_ Watertown  
 Feehan, J. J. \_\_\_\_\_ Rapid City  
 Felker, J. \_\_\_\_\_ Sioux Falls  
 Ferrell, M. R. \_\_\_\_\_ Sioux Falls  
 Finley, R. C. \_\_\_\_\_ Rapid City  
 Fisk, R. G. \_\_\_\_\_ Dell Rapids  
 Foley, R. J. \_\_\_\_\_ Tyndall  
 Fox, S. W. \_\_\_\_\_ Pierre  
 Francisco, E. G. \_\_\_\_\_ Estelline  
 Freimark, L. \_\_\_\_\_ Rapid City  
 Friefeld, S. \_\_\_\_\_ Brookings  
 Fromm, H. E. \_\_\_\_\_ Rapid City  
 Frost, D. M. \_\_\_\_\_ Sioux Falls  
 Frost, H. L. \_\_\_\_\_ Rapid City  
 Geib, W. A. \_\_\_\_\_ Rapid City  
 Gerber, B. C. \_\_\_\_\_ Aberdeen  
 Gere, R. G. \_\_\_\_\_ Mitchell  
 Giebink, R. R. \_\_\_\_\_ Sioux Falls  
 Gillis, F. D. \_\_\_\_\_ Mitchell  
 Golliher, W. N. \_\_\_\_\_ Spearfish  
 \*Graff, L. W. \_\_\_\_\_ Britton  
 \*Green, R. D. \_\_\_\_\_ Sioux Falls  
 Greenfield, D. L. \_\_\_\_\_ Sioux Falls  
 Greenfield, R. E. \_\_\_\_\_ Sioux Falls  
 Gregg, J. B. \_\_\_\_\_ Sioux Falls  
 Gregory, D. A. \_\_\_\_\_ Milbank  
 Gross, H. Phil \_\_\_\_\_ Sioux Falls  
 \*Grove, M. S. \_\_\_\_\_ Sioux Falls  
 Grover, W. W. \_\_\_\_\_ Bondeul, Wisc.  
 Gryte, C. F. \_\_\_\_\_ Huron  
 Gwinn, C. B. \_\_\_\_\_ Rapid City  
 Gysin, Walter \_\_\_\_\_ Watertown

\*Haas, F. W. \_\_\_\_\_ Yankton  
 Hagan, A. S. \_\_\_\_\_ Faulkton  
 \*Hagin, J. C. \_\_\_\_\_ Miller  
 Hamm, J. N. \_\_\_\_\_ Sturgis  
 Hansen, H. F. \_\_\_\_\_ Sioux Falls  
 Hanson, W. O. \_\_\_\_\_ Huron  
 Hare, H. J. \_\_\_\_\_ Rapid City  
 \*Hare, Lyle \_\_\_\_\_ Spearfish  
 Harris, Russell \_\_\_\_\_ Rapid City  
 Haugan, H. O. \_\_\_\_\_ Rapid City  
 Hayes, R. H. \_\_\_\_\_ Vermillion  
 Heinrichs, E. H. \_\_\_\_\_ Watertown  
 Henry, Robert \_\_\_\_\_ Brookings  
 Herbrandson, C. R. \_\_\_\_\_ Vermillion  
 Herzog, B. F. \_\_\_\_\_ Yankton  
 Heupel, Alden R. \_\_\_\_\_ Watertown  
 Hewitt, J. M. \_\_\_\_\_ Rapid City  
 \*Hill, J. F. \_\_\_\_\_ Yankton  
 Hockett, R. D. \_\_\_\_\_ Mitchell  
 Hofer, E. A. \_\_\_\_\_ Huron  
 Hofmann, A. R. \_\_\_\_\_ Rapid City  
 Hohm, Paul \_\_\_\_\_ Huron  
 Hohm, Theo. \_\_\_\_\_ Huron  
 Holland, L. W. \_\_\_\_\_ Chamberlain  
 Honke, R. W. \_\_\_\_\_ Wagner  
 Horthy, A. \_\_\_\_\_ Kennebec  
 Horthy, K. \_\_\_\_\_ Kennebec  
 Hosen, R. S. \_\_\_\_\_ Sioux Falls  
 Hoskins, J. H. \_\_\_\_\_ Sioux Falls  
 Hoskins, John \_\_\_\_\_ M.S.  
 Hovland, James I. \_\_\_\_\_ Aberdeen  
 Hubner, R. F. \_\_\_\_\_ Yankton  
 Huet, G. M. \_\_\_\_\_ Huron  
 Hughes, H. D. \_\_\_\_\_ Clear Lake  
 Huppler, E. G. \_\_\_\_\_ Watertown  
 Hura, R. \_\_\_\_\_ Howard  
 Ihle, C. W. \_\_\_\_\_ Sioux Falls  
 \*Jackson, A. S. \_\_\_\_\_ Rapid City  
 Jackson, J. K. \_\_\_\_\_ Yankton  
 Jacobson, T. R. \_\_\_\_\_ Hot Springs  
 Jahraus, R. C. \_\_\_\_\_ Pierre  
 Jameson, G. M. \_\_\_\_\_ Sioux Falls  
 Janavs, V. \_\_\_\_\_ Milbank  
 Janis, J. B. \_\_\_\_\_ Sioux Falls  
 Janusz, A. J. \_\_\_\_\_ Aberdeen  
 Jatoi, A. M. \_\_\_\_\_ Deadwood  
 Johnson, C. A. \_\_\_\_\_ Lemmon  
 Johnson, C. F. \_\_\_\_\_ Yankton  
 Johnson, E. A. \_\_\_\_\_ Milbank  
 Johnson, Robert \_\_\_\_\_ Rapid City  
 Jones, W. E. \_\_\_\_\_ Sturgis  
 Jones, W. L. \_\_\_\_\_ Sioux Falls  
 Judge, J. O. \_\_\_\_\_ Mitchell  
 Judge, W. T. \_\_\_\_\_ Milbank  
 Kalda, E. F. \_\_\_\_\_ Platte  
 Karlen, L. W. \_\_\_\_\_ Madison  
 Karlins, W. H. \_\_\_\_\_ Webster  
 Kass, Joseph \_\_\_\_\_ Rosholt  
 Kaufman, I. I. \_\_\_\_\_ Freeman  
 Kaul, Lothar \_\_\_\_\_ Sioux Falls  
 Kegaries, D. L. \_\_\_\_\_ Rapid City  
 Keller, L. W. \_\_\_\_\_ Wisconsin  
 \*Keller, S. A. \_\_\_\_\_ California  
 Kemper, C. E. \_\_\_\_\_ Viborg  
 Kershner, C. M. \_\_\_\_\_ Brookings  
 Kilpatrick, W. R. J. \_\_\_\_\_ Huron  
 King, B. F. \_\_\_\_\_ Aberdeen  
 King, L., Jr. \_\_\_\_\_ Sioux Falls  
 Kittelson, H. O. \_\_\_\_\_ Sioux Falls  
 Klar, W. \_\_\_\_\_ Flandreau  
 Kleinsasser, G. \_\_\_\_\_ Scotland  
 Knabe, G. W. \_\_\_\_\_ Vermillion  
 Knowles, R. C. \_\_\_\_\_ Sioux Falls  
 Kohlmeyer, F. C. \_\_\_\_\_ Sioux Falls  
 Koren, Paul \_\_\_\_\_ Rapid City  
 Kosse, Karl \_\_\_\_\_ Aberdeen  
 Kovarik, R. A. \_\_\_\_\_ Rapid City  
 Kovarik, W. J. \_\_\_\_\_ Rapid City  
 Kumar, John S. \_\_\_\_\_ Gettysburg



Kunz, J. A. ....	Rapid City	Ohrt, D. E. ....	Sioux Falls	Smith, G. W. ....	Sioux Falls
Kwan, F. P. ....	Rapid City	Olson, R. G. ....	Sioux Falls	Soukup, Victor J. ....	Sioux Falls
Lakstigala, Peter ....	Sioux Falls	Opheim, W. L. ....	Sioux Falls	Spears, B. ....	Pierre
Lampert, A. A. ....	Rapid City	Orgusaar, R. ....	Florida	Spiry, A. W. ....	Mobridge
Lang, Durward ....	Sioux Falls	Orr, R. T. ....	Sioux Falls	Stahmann, F. S. ....	Sioux Falls
Langenfeld, M. G. ....	Spearfish	Ortmeier, D. ....	Sioux Falls	Stanage, W. F. ....	Yankton
Lardinois, C. C. ....	Huron	Otey, B. T. ....	Flandreau	Steele, G. H. ....	Aberdeen
Larson, C. S. ....	Sioux Falls	*O'Toole, T. F. ....	Rapid City	Steele, J. P. ....	Yankton
Larson, J. C. ....	Watertown	Owen, G. S. ....	Rapid City	Steiner, P. ....	Sioux Falls
Larson, Leland J. ....	Sioux Falls	Palmerton, E. S. ....	Rapid City	Stensrud, H. J. ....	Madison
Lautzenheiser, Nancy ....	Aberdeen	*Pankow, L. J. ....	Sioux Falls	Stern, C. A. ....	California
Leander, R. B. ....	Sioux Falls	Park, Dai H. ....	Pierre	Stiehl, R. ....	Winner
Leigh, F. D. ....	Huron	*Parke, L. L. ....	Canton	Stoltz, C. R. ....	Watertown
Lenz, B. T. ....	Huron	Pasek, E. A. ....	Sioux Falls	Stransky, J. J. ....	Watertown
Leon, Paul ....	Aberdeen	Patt, W. H. ....	Brookings	Strauss, B. ....	Parker
Leraan, L. G. ....	Sioux Falls	Patterson, D. ....	Redfield	Studenberg, D. ....	Gregory
Lewis, H. R. ....	Mitchell	Paulson, G. S. ....	Rapid City	Sundet, N. J. ....	Kadoka
Lie, Dagfinn ....	Sioux Falls	Peeke, A. P. ....	Volga	Swanson, C. L. ....	Pierre
Lietzke, E. T. ....	Beresford	Peik, D. J. ....	Sioux Falls	Sweeney, L. J. ....	Sioux Falls
Lindbloom, B. O. ....	Pierre	Perry, E. J. ....	Redfield	Sweeny, W. T. ....	Aberdeen
Linde, Leonard ....	Mobridge	Petereit, M. F. ....	Sioux Falls	Sweet, E. P. ....	Burke
Lloyd, J. H. ....	Mitchell	Peters, E. H. ....	Sioux Falls	Swisher, L. P. ....	Kadoka
Loos, C. M. ....	Chamberlain	Petres, A. ....	Salem	Tam, Guy ....	Sioux Falls
Lovering, J. ....	Webster	Piro, D. F. ....	Watertown	Tank, M. C. ....	Brookings
Lowe, Harold ....	Mobridge	Pitt-Hart, B. T. ....	Sioux Falls	Taylor, Wm. R. ....	Aberdeen
Lushbough, B. C. ....	Brookings	Plowman, E. T. ....	Brookings	Tesar, C. E. ....	Rapid City
Lydiatt, J. ....	Hot Springs	Pokorny, J. F. ....	Newell	Theissen, H. H. ....	Rapid City
Lyso, M. ....	Yankton	Porter, M. H. ....	Parkston	Thompson, R. F. ....	Yankton
*Mabee, D. R. ....	Mitchell	Porter, Richard ....	Yankton	Thornton, R. R. ....	Yankton
Mabee, J. O. ....	Mitchell	Price, Ronald ....	Armour	Tidd, J. T. ....	Yankton
Mabee, O. J. ....	Mitchell	Quinn, R. H. ....	Sioux Falls	Tieszen, A. J. ....	Pierre
MacDonough, H. J. ....	Aberdeen	*Quinn, R. J. ....	Sioux Falls	Tobin, F. J. ....	Mitchell
Magtibay, M. ....	Bryant	Radack, M. L. ....	Yankton	Tobin, L. W. ....	Mitchell
Mangulis, G. ....	Philip	*Radusch, F. J. ....	Rapid City	Torkildson, G. ....	McLaughlin
Manning, D. H. ....	Sioux Falls	Ranney, Brooks ....	Yankton	Totten, F. C. ....	Lemmon
Maresh, E. R. ....	Sioux Falls	Reade, D. M. ....	Yankton	Tracy, G. E. ....	Watertown
Marousek, M. ....	Belle Fourche	Reagan, J. L. ....	Madison	Tschetter, P. S. ....	Huron
Mattice, Lloyd ....	Sioux Falls	Reagan, P. R. ....	Sioux Falls	Tschetter, R. T. ....	Sioux Falls
Mattox, J. E. ....	Deadwood	Reaney, D. B. ....	Yankton	Tuohy, G. ....	Sioux Falls
McCabe, F. X. ....	Brookings	Reding, A. P. ....	Marion	Turner, C. R. ....	Vermillion
McCann, J. P. ....	Parkston	Reul, T. W. ....	Watertown	Van Demark, R. E. ....	Sioux Falls
McCarthy, P. V. ....	Aberdeen	Riesberg, E. ....	Yankton	Van Heuvelen, G. J. ....	Pierre
McDonald, C. J. ....	Sioux Falls	Roberts, C. S., Jr. ....	Brookings	Villa, J. P. ....	Freeman
McGee, R. C. ....	Aberdeen	Rodine, J. C. ....	Aberdeen	Vogele, A. C. ....	Aberdeen
McGreevy, E. J. ....	Sioux Falls	Roman, T. P. ....	Martin	Vogele, C. L. ....	Aberdeen
McGreevy, J. V. ....	Sioux Falls	Roper, C. E. ....	Hot Springs	Vogelgesang, L. C. ....	Webster
McHardy, B. R. ....	Sioux Falls	Rosa, S. ....	Redfield	*Volin, H. P. ....	Lennox
McIntosh, G. F. ....	Eureka	Rossing, W. O. ....	Sioux Falls	Volin, V. V. ....	Sioux Falls
McVay, C. B. ....	Yankton	Rousseau, David ....	M.S.	Vonburg, V. R. ....	Mitchell
Mead, T. ....	Spearfish	Rousseau, M. C. ....	Watertown	Vose, J. L. ....	Mitchell
Merryman, M. P. ....	Rapid City	Rudolph, E. A. ....	Aberdeen	Wagner, Loyd ....	Sioux Falls
Michael, A. ....	Indianapolis	Ruud, E. T. ....	Rapid City	Waltner, Lonnie ....	Freeman
Michieli, Jose ....	Watertown	Ryan, C. F. ....	New Mexico	Walton, J. ....	Martin
Millea, R. P. ....	Rapid City	Ryan, J. E. ....	Mobridge	Watson, E. S. ....	Brookings
*Mills, G. W. ....	Wall	*Salladay, I. R. ....	Pierre	Weatherill, D. W. ....	Mitchell
Moller, C. ....	Dell Rapids	Salmon, D. ....	Sioux Falls	Weber, R. A. ....	Mitchell
Monfore, James ....	Miller	Sanders, M. E. ....	Redfield	Wegner, K. H. ....	Sioux Falls
Monson, C. D. ....	Parkston	Sanderson, E. W. ....	Sioux Falls	Werthmann, H. ....	Pierre
Monson, D. G. ....	Watertown	Saoi, N. B. ....	Yankton	Wessman, N. E. ....	Sioux Falls
Moore, E. J. ....	Vermillion	Sattler, T. H. ....	Yankton	*Westaby, J. R. ....	Madison
Morrissey, M. M. ....	Pierre	Savage, L. ....	Yankton	Westaby, R. S., Jr. ....	Rapid City
Muckala, Kenneth ....	Vermillion	Saxton, A. J. ....	Kansas	Whitney, N. R. ....	Rapid City
Mueller, E. H. ....	Tripp	Saxton, W. H. ....	Huron	Whitson, G. E. ....	Madison
Muggly, J. A. ....	Madison	Saylor, H. L., Jr. ....	Huron	Willcockson, T. H. ....	Yankton
Munson, H. B. ....	Rapid City	Scheffel, A. ....	Redfield	Willen, Abner ....	Clark
Murdy, C. B. ....	Aberdeen	Scheller, D. L. ....	Arlington	Williams, B. J. ....	Sioux Falls
Murphy, J. C. ....	Hot Springs	Schultz, R. D. ....	Sioux Falls	Williams, F. R. ....	Rapid City
Murphy, J. T. ....	Mitchell	Seaman, David ....	Aberdeen	Williams, M. F. ....	Minnesota
Mutch, M. G. ....	Sioux Falls	Sebring, F. U. ....	Vermillion	Wingert, M. ....	Garretson
Natarajan, R. ....	Rapid City	Sejvar, J. P. ....	Lead	Wold, H. R. ....	Madison
Nelson, Earl ....	Viborg	Semones, A., Jr. ....	Lead	Wood, G. F. ....	Rapid City
*Nelson, J. A. ....	California	Sercl, W. F. ....	Sioux Falls	Wrage, T. J., Jr. ....	Watertown
Nelson, P. S. ....	Watertown	Shaeffer, J. H. ....	Sioux Falls	Yackley, J. V. ....	Rapid City
Nelson, R. E. ....	Sioux Falls	Shaskey, R. E. ....	Brookings	Zakahi, R. J. ....	Pierre
Nemer, R. G. ....	Gregory	*Sherwood, C. E. ....	Madison	Zandersons, V. ....	Parker
Nolan, B. P. ....	Mobridge	Shousha, A. ....	Britton	Zanka, J. A. ....	Rapid City
Norgello, V. ....	Redfield	Shreves, H. ....	Sioux Falls	*Zimmerman, Goldie E.	
Ochsner, J. A. ....	Sioux Falls	Skogmo, B. R. ....	Mitchell		Missoula, Montana
Odland, W. B. ....	Aberdeen	Slingsby, J. B. ....	Rapid City	Zvejnieks, K. ....	Aberdeen
Ogborn, R. J. ....	Sioux Falls	Smiley, J. C. ....	Deadwood		

M.S.—Indicates Military Service

\*—Indicates Honorary Membership



**PLAN TO ATTEND  
SOUTH DAKOTA A.P.C.**

(American College of Physicians)

**MEETING, 19th and 20th of September, 1969,  
AT THE MEDICAL SCHOOL,  
VERMILLION, S. D.**

Friday, 19th Sept. 1969.

1:00 P.M. "Chylous Thorax — presentation of several cases."

Robert Thompson, M.D. and  
John Tidd, M.D.

1:30 P.M. "Parkinson's Disease: Current Concepts in Biochemistry and Physiology."

Martin Chipman, M.D.

2:00 P.M. "Hyperthyroidism in Pregnancy."

Lynn DeMarco, M.D.

2:30 P.M. "Chronic Pericardial Effusion."

S. Sochocky, M.D.

Coffee———

3:30 P.M. "Goodpasture's Syndrome;  
a Case Report."

Wm. Rossing, M.D.

4:00 P.M. "Relty's Syndrome; a Case Report."

H. Streeter Shining, M.D.

4:30 P.M. C.P.C. presented by John F. Barlow,  
M.D. and Discussed by  
William Taylor, M.D.

Saturday, 20th Sept. 1969.

Ray Gifford, M.D., from the Cleveland Clinic,  
an authority on Hypertension, will present  
two papers.

H. Liston Beasley, M.D., a cardiologist from  
Houston, Texas, with special interest in the  
problems in selection of patients for heart  
surgery will also present two papers.

Tentatively 8:30 to 12:30 (noon)

**Preliminary Scientific Program Presented by  
Alumni of the Medical School at the Med-  
ical School on September 26, 1969.**

**Preceding the Medical School Building Addition  
Dedication on September 27, 1969.**

**DERMATOLOGICAL SYMPOSIUM**

1:30—5:00 p.m.

Medical School

University of South Dakota

1:30—3:00 PROGRAM:

1. Skin Neoplasms

2. Pigmented skin lesions

Question and answer period

3:00—3:30 COFFEE BREAK

- 3:30—5:00
3. Common viral and fungal diseases of the skin
  4. Eczematoid dermatosis
  5. Dermatoses that can be confused with above

Question and answer period

**PARTICIPANTS—**

Helen Jane Hare, M.D. '40  
Rapid City, South Dakota

I. Eirinberg, M.D. '40  
Sioux Falls, South Dakota

Don Alcott, M.D. '40  
San Jose, California



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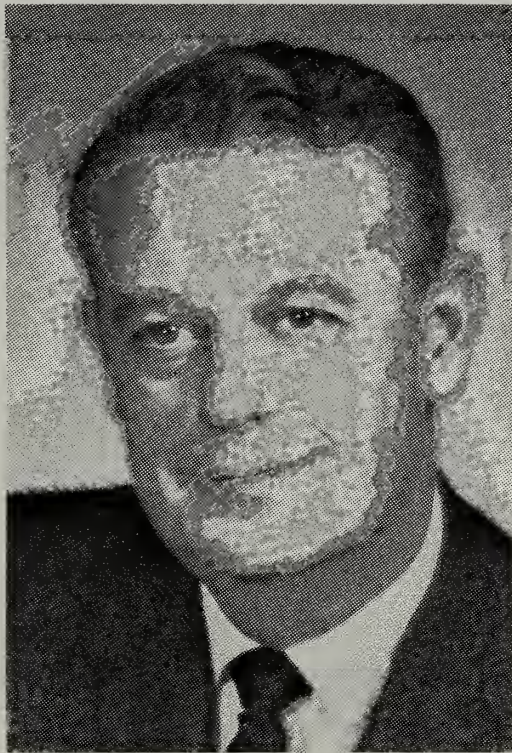
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# P R E S I D E N T ' S P A G E



There was some criticism of a news item released by the South Dakota Medical Association over my signature on June 13, 1969. This release stated that the Council of the South Dakota Medical Association unanimously passed the resolution which read as follows:

"If physicians are to continue to practice medicine under a free system, then they, as a group, must be ready to take action against those few doctors who might abuse health care programs."

"Organized medicine has a responsibility to the public, the government and the honest practitioner and we do not intend to let abuses go unnoticed."

The AMA has promoted the concept of peer review for over ten years. It is now very evident that this is becoming even more important to the medical profession, to preserve the freedom of medicine that we still have.

This has been well brought out by a recent statement of Representative Paul N. McCloskey (R-California). He lauded San-Mateo and Santa Clara County (California) medical societies for regulating over-utilization by patients, and excessive charges by MD's in federal and state medical programs.

"If San-Mateo County practices could be used elsewhere, and enforced, it might alleviate the need for federal controls," Representative McCloskey said.

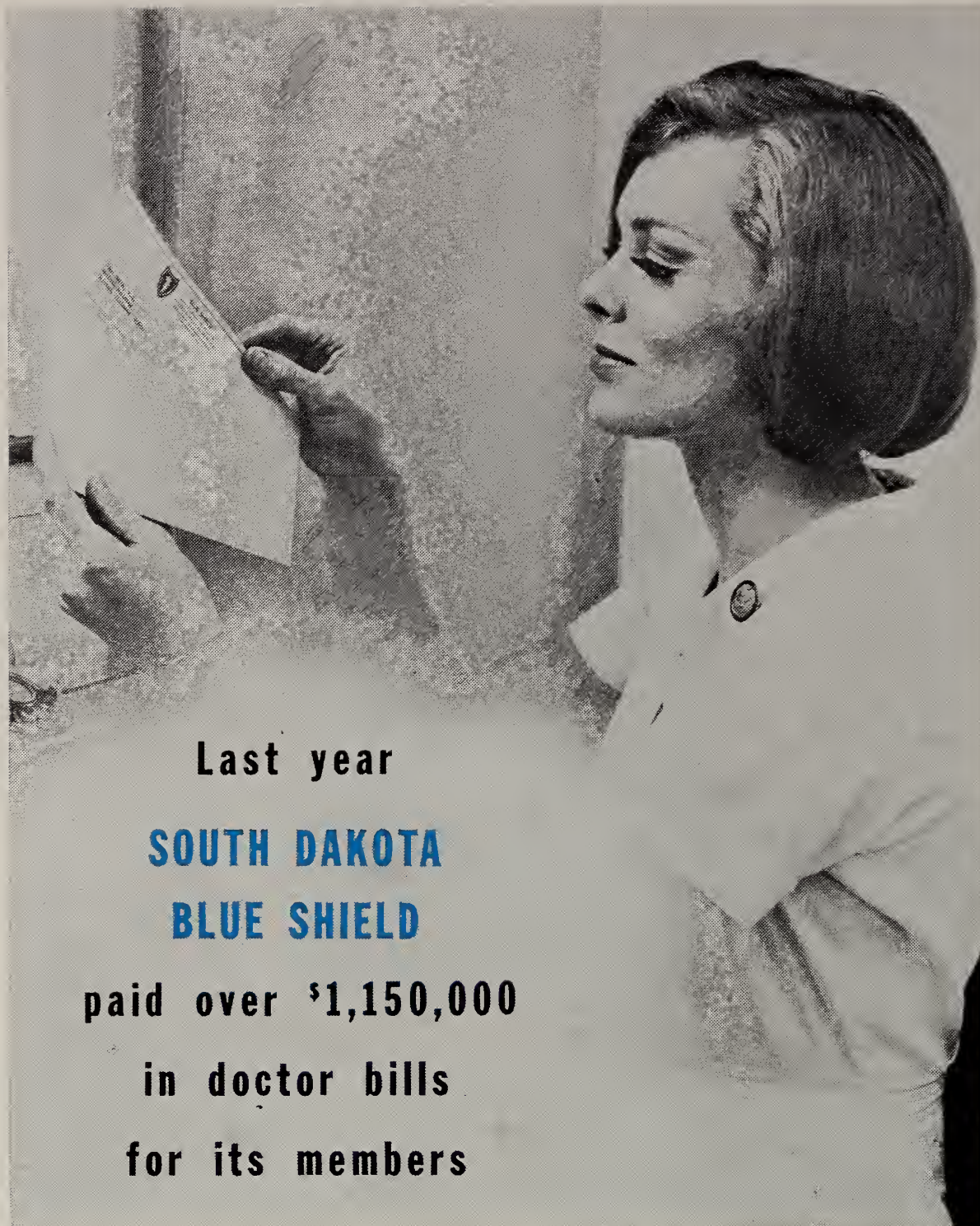
We have been informed by several physicians that their freedom is being invaded if they are questioned about the possibility of over-utilization or charges made.

We believe that it is self-evident, that the government agencies will set up review committees of their own, if we fail to function actively on our own.

None of us relishes the idea of having our judgment or charges questioned but at the present time we must take the lesser of two evils.

Robert H. Quinn, M.D.  
President





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**BLUE SHIELD**  
**paid over \$1,150,000**  
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# MEDICAL ASSOCIATION

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News Notes • Changes • Births • News

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## Pop's Proverb

Venereal disease and ptomaine poisoning both can come from a tainted chicken.

**Robert Shaskey, M.D., B. C. Lushbough, M.D., Charles Roberts, M.D. and E. T. Plowman, M.D.,** Brookings, conducted a 14 week coronary care class at the Brookings Hospital and graduated 24 members.

\* \* \*

**A. J. Tieszen, M.D.,** Pierre, won first place in the U. S. coins category at the 18th annual convention of the South Dakota Coin and Stamp Association.

\* \* \*

The South Dakota Heart Association elected **Bruce Lushbough, M.D.,** Brookings, President Elect, and **H. E. Lowe, M.D.,** Mobridge, Vice President. Newly elected directors include **Theodore Angelos, M.D.,** Canton; **C. J. Clark, M.D.,** Watertown; **E. H. Heinrichs, M.D.,** Watertown; and **K. A. Muckala, M.D.,** Vermillion.

**Bernard Gerber, M.D.,** Aberdeen, was elected to a five-year term on the Board of Education of the Aberdeen Independent School District.

\* \* \*

**James Hockenberry, M.D.,** formerly from North Dakota, has opened an office in Britton.

**John C. Hagin, M.D.,** Miller, attended the 50 year alumni reunion at the University of Cincinnati College of Medicine.

\* \* \*

The Legislative Research Council's interim committee to study medical education is being chaired by **G. Robert Bartron, M.D.,** Watertown.

\* \* \*

A conference held in Watertown on stroke was moderated by **E. H. Heinrichs, M.D.,** Watertown. Faculty for the conference included **Carroll J. Clark, M.D.,** Watertown; **Martin Chipman, M.D.,** Sioux Falls; and **Walter Gysin, M.D.,** Watertown.

\* \* \*

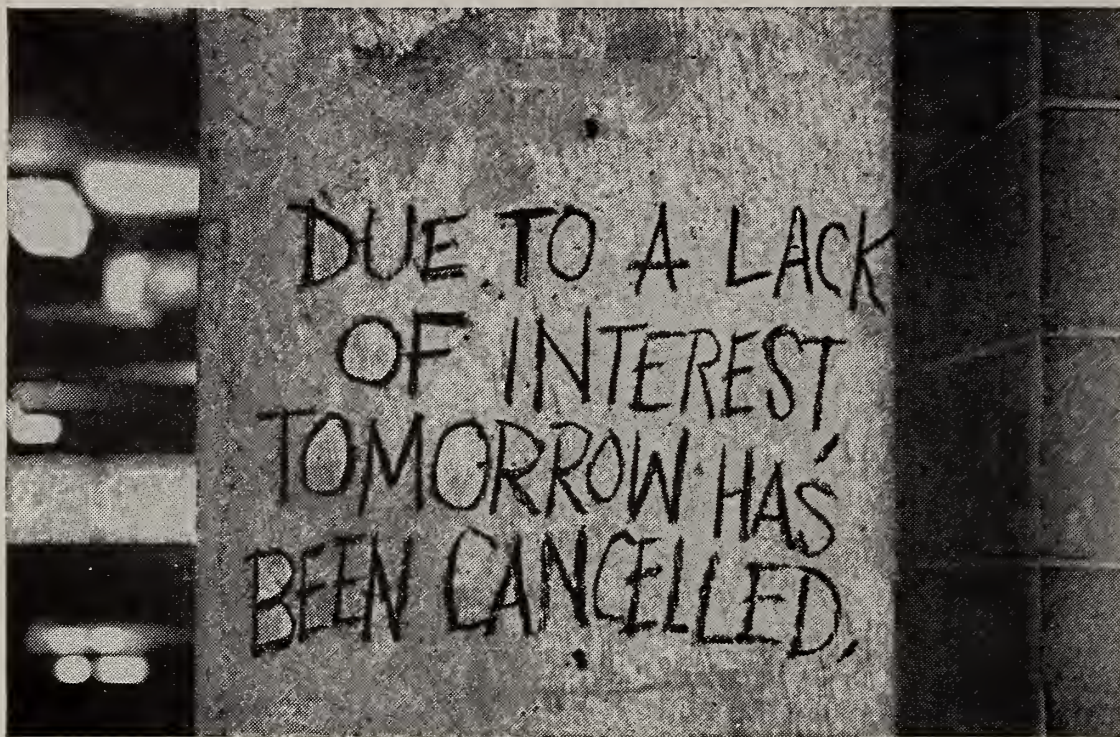
New physicians in Webster are **Ben Buentipo, M.D.** from Wheaton, Minnesota and **Lloyd Vogelgesang, M.D.** of Gregory.

\* \* \*

**Clark Johnson, M.D.,** Yankton, has been appointed for another six-year term to the South Dakota Medical Panel by Governor Frank Farrar.

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711 North Lake Avenue

Sioux Falls, South Dakota 57104

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#### Vice President

G. R. Bartron, M.D. ----- Watertown

#### Secretary-Treasurer (1970)

A. P. Reding, M.D. ----- Marion

#### AMA Delegate (1970)

A. P. Reding, M.D. ----- Marion

#### Alternate AMA Delegate (1970)

R. H. Quinn, M.D. ----- Sioux Falls

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W. R. Taylor, M.D. ----- Aberdeen

#### Speaker of the House

Clark Johnson, M.D. ----- Yankton

#### Councilor-at-Large

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Gerald E. Tracy, M.D. (1971) ----- Watertown

#### Third District (Brookings-Madison)

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#### Sixth District (Mitchell)

Harvard Lewis, M.D. (1972) ----- Mitchell

#### Seventh District (Sioux Falls)

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#### Eighth District (Yankton)

Clark Johnson, M.D. (1971) ----- Yankton

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#### Tenth District (Rosebud)

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#### Eleventh District (Northwest)

H. E. Lowe, M.D. (1970) ----- Mobridge

#### Twelfth District (Whetstone)

H. H. Brauer, M.D. (1970) ----- Sisseton

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Courtney Anderson, M.D. ('70)	Robert Hayes, M.D. ('71)
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Bruce Allen, M.D. ('71)	Edwin J. Moore, M.D. ('70)
Charles S. Roberts, M.D. ('71)	B. T. Lenz, M.D. ('72)
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C. Rodney Stoltz, M.D. ('70)	E. A. Rudolph, M.D. ('72)

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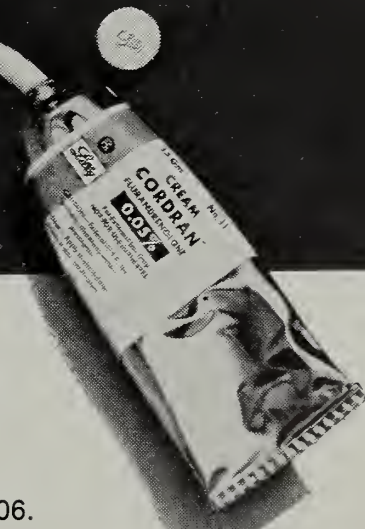
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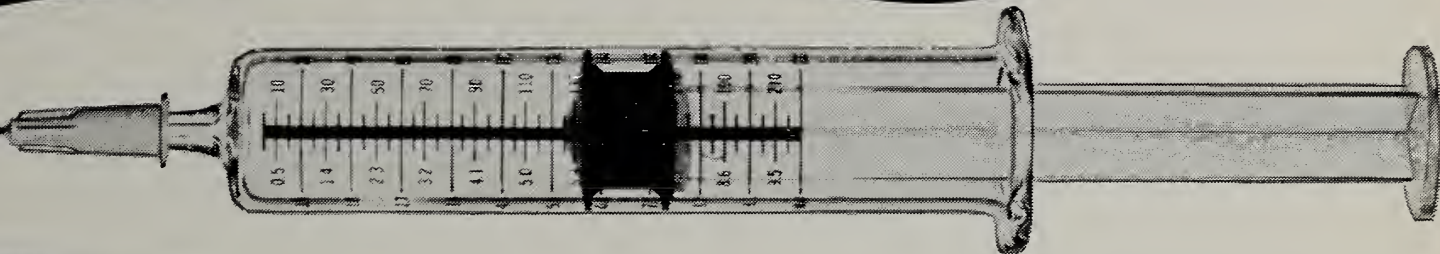


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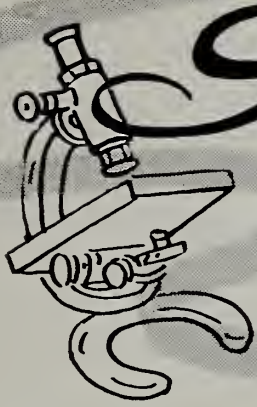
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# Scientific

## PAPER

### AIDS TO CARDIAC DIAGNOSIS FROM EXAMINATION OF THE CERVICAL VEINS\*

by  
Noble O. Fowler, M.D.

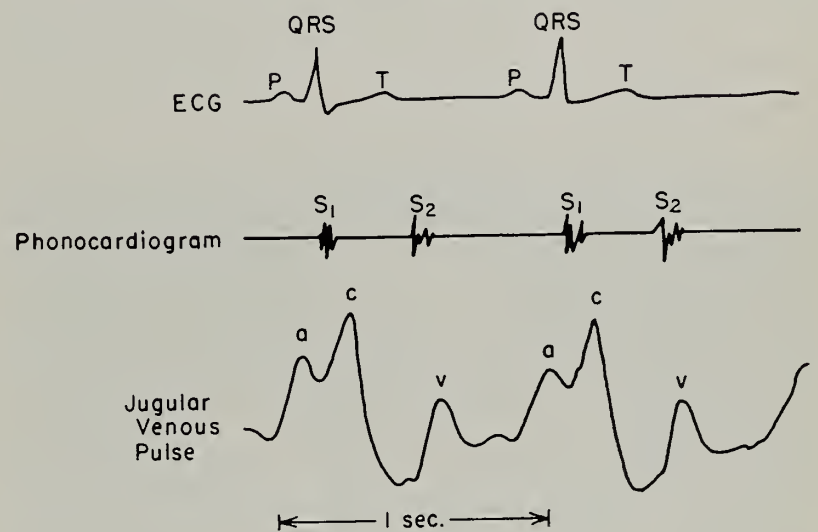
Cardiac Research Laboratory, Department of Internal Medicine, University of Cincinnati College of Medicine, Cincinnati General Hospital, Cincinnati, Ohio 45229.

#### METHOD OF INSPECTING THE JUGULAR VEINS

The patient should lie so that the thorax is elevated approximately 30 degrees from horizontal, employing a bed or examining table which breaks at the hips, so that the thorax, abdomen, head and neck are elevated, while the lower extremities remain horizontal. The veins are best seen with artificial light directed tangentially across them in order to produce shadows.

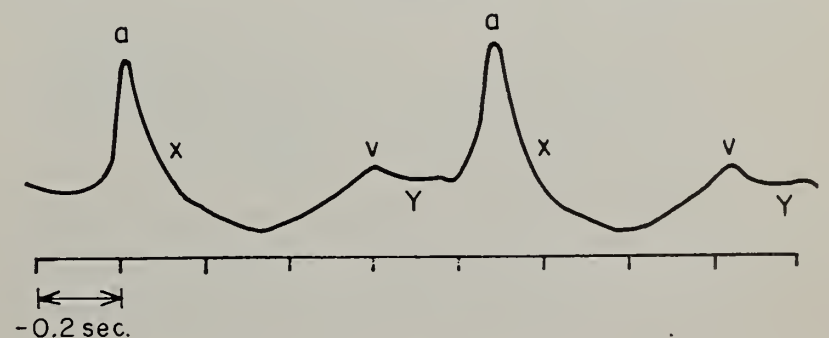
Order of procedure: The external jugular veins and the internal jugular veins should be identified bilaterally. In many patients the external jugular veins are invisible. Important information may be missed if the internal jugular veins are not examined. If pulsations are not visible in the internal jugular veins, with the patient's thorax elevated to 30 degrees, then the thorax should be raised or lowered. The internal jugular veins lie deep to the sternomastoid muscles and are best recognized by their broad, undulating, and triphasic pulsations, (Figure 1). The *a* wave is produced by atrial systole. It is the quick wave which just precedes the carotid pulse. The descending limb of the *a* wave is followed by a negative wave, the *x* wave, produced by atrial diastole, (Figure 2). The *x* wave is followed by the second positive wave or *c*

Figure 1



External recording of normal jugular venous pulse, demonstrating *a*, *c*, and *v* waves. For discussion, see text. From Fowler, N. O., *Cardiac Diagnosis*. Hoeber-Harper, 1968. By permission.

Figure 2



External recording of jugular venous pulse of a patient with tricuspid stenosis, showing large *a* wave and slow *y* descent. From Fowler, N. O., *Cardiac Diagnosis*. Hoeber-Harper, 1968. By permission.

\*Prepared by the South Dakota Heart Association for this Journal.



wave, (Figure 1). The **c** wave results from bulging of the tricuspid valve into the right atrium as the right ventricle begins to contract; however, in the neck veins the **c** wave is considerably augmented by the underlying carotid pulse. The third positive wave of the jugular pulse is the **v** wave, which is produced by passive filling of the right atrium, (Figure 1). The descent of the **v** wave is referred to as the **y** descent, (Figure 2), inscribed as the tricuspid valve opens and blood flows into the right atrium.

When large **v** waves dominate the internal jugular pulse, as a result of right ventricular failure or tricuspid insufficiency, the venous pulse may be confused with the carotid pulse. The following procedures will distinguish the two. Moderate pressure with a tongue blade or the edge of the hand will obliterate the jugular but not the carotid pulse. If the cervical venous pressure is increased because of right heart failure, abdominal pressure with the hand, sustained for thirty seconds or so, will usually cause the venous pulse to become larger and to ascend higher in the neck (hepato-jugular reflux). With the Valsalva maneuver, the jugular veins usually become more distended but lose their pulsations; not so the carotid arteries. Usually the jugular venous pulses descend lower in the neck during inspiration or when the patient's head is raised, but the carotid pulse is not so affected.

#### INFORMATION OBTAINED FROM EXAMINATION OF THE JUGULAR VEINS

1) **Estimation of the systemic venous pressure.** When internal or external pulsations are more than 2 or 3 centimeters above the manubrium, one may be confident of elevation of systemic venous pressure, usually from right ventricular failure or constrictive pericarditis. A positive hepato-jugular reflux confirms this observation. The patient must continue to breathe normally and must not perform a Valsalva maneuver during the test. Bilateral non-pulsatile distention of the jugular veins, associated with a collateral venous pattern over the upper chest, suggests superior vena caval obstruction from aortic aneurysm, lymphoma, thymoma, or bronchogenic carcinoma.

2) **Distention of only the left jugular veins.** This usually indicates obstruction of the left innominate vein (kinked left innominate vein). This most commonly results from an elongated aortic arch associated with hypertension or atherosclerosis. However, on occasion, the left innominate vein is compressed by an aneurysm involving the aortic arch.

3) Prominent **a** waves in the jugular venous pulse with each cardiac cycle suggest forceful right atrial systole, related either to tricuspid obstruction or increased thickness of the right ventricular wall (decreased compliance). The following clinical causes may be considered:

- a) **Tricuspid stenosis.** Usually there is accompanying rheumatic mitral disease. The **a** wave may ascend in the neck during inspiration; normally it descends during inspiration. There are usually shallow and slow **x** and **y** descents (Figure 2).
- b) **Congenital tricuspid atresia.**
- c) **Right atrial myxoma.**
- d) **Pulmonary valvular stenosis of moderate or severe degree.** Prominent **a** waves are ordinarily not to be found in tetralogy of Fallot.
- e) **Congenital pulmonary atresia with intact ventricular septum.**
- f) **Pulmonary hypertension.** Mitral stenosis, lung disease, idiopathic or thromboembolic pulmonary hypertension, or pulmonary arterial branch stenosis may be the cause. Prominent **a** waves occasionally occur in Eisenmenger's syndrome.
- g) **First degree A-V block of sufficient degree that atrial systole occurs when the tricuspid valve is closed.** Similarly, large **a** waves may occur during A-V nodal rhythm.

4) **Irregular giant a waves or cannon a waves.** These may occur with premature atrial or ventricular systoles, if atrial systole coincides with ventricular systole. Irregular cannon **a** waves also may occur with a regular ventricular rhythm when there is atrioventricular dissociation resulting from complete A-V block, A-V dissociation by interference or paroxysmal ventricular tachycardia. With complete A-V block in adults, the ventricular rate is usually near 40 per minute and there is varying intensity of the first heart sound. With A-V dissociation by interference, the ventricular rate is usually between 60 and 110 per minute. With ventricular tachycardia, the ventricular rate is usually between 130 and 250 per minute. The atrial rate, as judged by the jugular **a** waves, is most often at the normal sinus rate of 60 to 100 per minute.

5) **Atrial flutter.** With this one may be able to detect small rapid regular oscillations which occur approximately 300 times per minute.

6) Prominent **c-v** waves, with obliteration of the **x** descent usually reflect tricuspid insufficiency. This sign is most pronounced in patients with rheumatic mitral disease and rheumatic



tricuspid insufficiency; it may also occur with right heart failure.

7) **The y descent** is usually accentuated with constrictive pericarditis (diastolic collapse of Friedreich). Patients with constrictive pericarditis almost invariably display increased venous pressure. Some demonstrate increased jugular distention during inspiration (Kussmaul's sign). This sign may be positive in occasional patients with right ventricular failure, especially in those with restrictive myocardial pathology.

June 27, 1969

### CONFERENCE ON SUB-PROFESSIONAL PERSONNEL IN PHARMACY

Inasmuch as the H.E.W. Task Force on Prescription Drugs recommended "the development of a pharmacist aide curriculum in junior colleges and other educational institutions" and that this recommendation was being interpreted as a strict command by H.E.W. officials, a conference on sub-professional personnel was held on June 27, 1969 in Kansas City, Missouri, involving the following interested groups from Arkansas, Iowa, Kansas, Oklahoma, Missouri and Nebraska: pharmaceutical educators, state boards of pharmacy, state pharmaceutical associations, and hospital, community, and chain store pharmacies.

The purpose of the conference was to investigate this recommendation and the situation regarding sub-professional personnel as it was felt that "grass roots" thinking should be sought since many questions, not only about curricula but also about more basic related issues, needed to be resolved before this proposal could be realistically implemented.

The following positions were adopted by the conference:

1. Recognizing sub-professional personnel presently exist in various forms, this conference opposes mandatory college training and licensure of a new classification of pharmacy technician until there is some demonstrated need. We do not believe such need exists today.
2. The work allocation of a pharmacy sub-professional is to be assigned by the supervising pharmacist in the particular circumstance, within the laws of the state. No delineation of tasks should be presented as a right or entitlement.

The first position was unanimously adopted. The three dissenting votes on the second position were not opposed to the spirit of the posi-

tion, but realistically recognized the failings in present Missouri law.

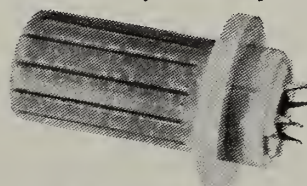
The group began with apparently unanimous agreement that the terms relating to sub-professionals were vague, since such personnel were presently widely used in all areas of pharmaceutical practice.

Although our best predictions indicate a tremendous increase in utilization of pharmaceutical services, the conference recognized that the present delivery system could be made vastly more efficient. By various technological and operational means, the pharmacist could handle all predicted increases without the necessity for additional college trained sub-professionals.

The A.Ph.A. Task Force on Role of the Practitioner of Pharmacy and the Sub-professional in Pharmacy enumerated various tasks which could be handled by the sub-professional and/or professional pharmacist respectively. This conference, however, recognized that each individual situation is different. There is no uniformity either of capability of, or of tasks assigned to, the sub-professional. The individual pharmacist is in the best position to make the decision as to delegated duties.

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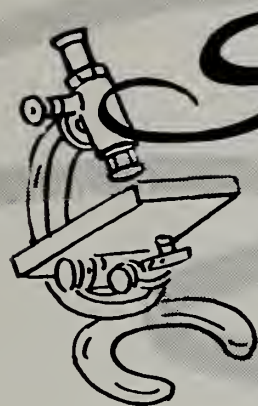
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WHAT'S  
SO WEAK  
ABOUT  
THE WEAKER  
SEX?





# Scientific P A P E R

## PRINCIPLES OF THERAPY IN CEREBRAL VASCULAR DISEASE

Mark L. Dyken, M.D.\*

Associate Professor of Neurology

Indiana University School of Medicine

Indianapolis, Indiana

Before I discuss the principles of medical therapy, I would like to play a game. The reader is familiar with the terrible death toll caused by motor accidents. For a moment, stop and think about these deaths and compare them to the deaths caused by cerebral vascular accidents. Is the mortality the same or does one cause more deaths than the other? If you think there is a difference, estimate the degree. Keeping this comparison in mind, think again about motor accidents, and add to this group all other violent deaths, whether due to falls, fires, drownings, firearms, homicides, suicides, machinery accidents, poisonings by solids or liquids, poisonings by gases or vapors, etc. Now compare the mortality rate of this large group to that of cerebral vascular disease. If you have not thought about this before, Fig. 1 may be impressive.<sup>1</sup> The annual death rate due to stroke is almost 4 times that of motor accidents and about 2 times that of all accidents. As the news media stress the problems of accidents, I will limit my presentation to cerebral vascular disease.

It will be impossible to exhaustively review the vast and oftentimes conflicting literature concerning the therapy of cerebral vascular

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CVA	204,841	
MOTOR ACCIDENTS	53,100	(26%)
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CVA	6,171	
MOTOR ACCIDENTS	1,535	(25%)
ALL ACCIDENTS	3,655	(59%)
POISONING		
SUICIDE		
HOMICIDE		

Fig. 1

disease. Unfortunately, many conflicting opinions concerning therapy and treatment programs are available, and one must read quite widely not to be prejudiced by a few articles. Although it will be impossible not to reflect some of my own prejudices, the attempt will be made to present the facts as objectively as possible.

For practical purposes, I will discuss ischemic and hemorrhagic disease separately, but before I discuss either group, I must stress that treatment begins with diagnosis, and diagnosis begins with a satisfactory understanding of the functional anatomy of the brain, the usual distribution of the arteries, the basic pathological processes of the central nervous system, and how the central nervous system reacts to injury. To use this knowledge, a complete history and a physical and neurological examination are a

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necessity. The **first principle of therapy** is to **rule out diseases that mask as cerebral vascular disease.**

Although the major causes of ischemic disease are atherosclerosis either with or without thrombosis and cerebral embolism,<sup>2</sup> and the major causes of spontaneous hemorrhagic diseases are ruptured berry aneurysm or cerebral hemorrhage associated with hypertension,<sup>3</sup> rarer causes, some of which are treatable, can produce these conditions. Ischemic disease may be produced by such things as a tumor compressing an artery, septic embolus with early abscess formation, meningovascular syphilis, arteritis related to pyogenic or tuberculous meningitis, malaria, lymphoma, collagen disease, polycythemia, trauma to the neck, hematological disorders, dissecting aortic aneurysm, radiation, and tentorial, foramen magnum and subfacial herniations.<sup>2</sup> Clinically spontaneous hemorrhagic disease may be produced by unrecognized trauma, anticoagulant therapy, erosion of a vessel by a tumor, arteriovenous malformation, mycotic aneurysm, collagen disease, blood dyscrasia, etc.<sup>2</sup> Therefore, the **second principle of therapy** is to **be aware of, diagnose, and treat the rarer causes of cerebral vascular disease** (especially those that are specifically treatable).

One must be aware that cerebral vascular disease may be associated with other diseases. Atherosclerosis of the vessels supplying other organs, e.g., the heart and kidneys, diabetes mellitus, hypertension, renal disease and heart disease are some of these.<sup>4-12</sup> These diseases must be recognized and treated for proper care of a stroke patient. The **third principle of therapy** is to **diagnose and treat associated disease.**

In addition to the first three principles of therapy, one must consider other conditions that might have precipitated the "accident." Cerebral infarction or ischemia may follow any condition that decreases the blood, oxygen or glucose supply to an area attenuated by atherosclerosis.<sup>13-16</sup> A cerebral infarction may be secondary to either a drop in blood pressure or embolic phenomena secondary to myocardial infarction. Orthostatic hypotension, blood loss, carotid sinus sensitivity, drops in pressure during anesthesia, or any condition producing a precipitous drop in blood pressure can cause an infarction. Severe anemia, hypoglycemia, or any condition associated with reduced oxygen-carrying capacity of the blood may contribute to the development of an infarction. Therefore,

the **fourth principle of therapy** is to **diagnose and treat diseases that may precipitate a cerebral vascular accident.**

Only after one has adhered to the first four principles of therapy is one ready to discuss the treatment of the specific insult; and even at this point, we are not ready to talk specifically about ischemic and hemorrhagic disease. The complications of bed rest and inability to handle secretions cause most of the deaths in patients with cerebral ischemic disease and contribute significantly to those who die with intracranial hemorrhage. These complications include genitourinary tract infections, pneumonia, thrombophlebitis, decubiti, and other intercurrent infections. They may be largely prevented by intensive nursing care, careful maintenance of fluid and electrolyte balance, rigid adherence to good supportive therapy and immediate passive physical therapy.<sup>17-18</sup> In ischemic disease, unless contraindicated, active physical therapy should be started as soon as the patient can cooperate.<sup>19-21</sup> The physician must above all be a total doctor and use all of his training to guide his program and must recognize complications early and treat them vigorously. In patients who have language disturbances, personnel and relatives should be instructed in the importance of attempting to communicate with the individual so that there is stimulation from the environment that encourages the patient to regain skills lost by the insult.<sup>22</sup> Many physicians have become disillusioned by the failure of many types of so-called specific therapy that have been touted and have resolved themselves to the defeatist attitude that stroke is untreatable. I believe they are correct if by treatment they mean reading the Physicians' Desk Reference to find a specific therapy after a laboratory report has made the diagnosis. To me, the greatest challenge and reward in therapy is to use medical skills to decrease morbidity and mortality by good total care of the patient and to prevent complications, or to recognize and treat them early. This is indeed a challenge to a physician. The **fifth principle of therapy in cerebral vascular disease** is to **devise a total treatment program to prevent, recognize and treat complications associated with bed rest.** The **sixth principle of therapy** is to **obtain maximum function of residual abilities.**

At this point, after the first six basic principles of therapy have been initiated, we are ready to discuss specific treatment. In this discussion, it will become obvious that, if all therapies that



have been reported were indeed of value, there would be no need for this paper as cerebral vascular disease would be no longer a problem. Therefore, before the discussion begins, we must again stress proper scientific evaluation of proposed treatments.

### **SPECIFIC THERAPY — INTRACRANIAL HEMORRHAGE**

**Subarachnoid Hemorrhage Related to Berry Aneurysm:** Subarachnoid hemorrhage secondary to a ruptured aneurysm has been treated with hypothermia,<sup>23-27</sup> hypotensive agents,<sup>28-32</sup> carotid ligation,<sup>33-38</sup> and various types of intracranial surgical approaches.<sup>39-49</sup> Recently, a pilot study has suggested that epsilon aminocaproic acid, an antifibrinolytic agent may be of value.<sup>50</sup> If one of these articles was selected at random, a casual reader might be convinced that it described the best treatment available. Unfortunately, this vast mass of literature has not been submitted to rigorous scientific evaluation, and as of yet we do not know the ideal form of treatment. McKissock and his group were the first to perform a controlled scientific study.<sup>51-52</sup> A well-designed controlled cooperative study sponsored by the National Institutes of Health has been established to study bed rest, hypotension, carotid ligation and intracranial surgery.<sup>53</sup> Although many institutions are co-operating in this study, after five years no clear cut preference has been published by this group. We may assume after this length of time that the best treatment will not be too greatly different from the others; otherwise a decision would have been made earlier. It may be that no single form of therapy will be ideal for all locations of aneurysm and all time intervals after the initial bleeding. Epsilon aminocaproic acid is mentioned only in passing as it has not yet been submitted to rigorous controlled study. The data reported by Sahs from the National Institutes of Health Cooperative Study of Intracranial Aneurysms and Subarachnoid Hemorrhage revealed such an extremely poor prognosis for patients treated with hypothermia that further studies are probably not indicated.<sup>32</sup>

**Cerebral Hemorrhage Associated with Hypertension:** The mortality rate of this serious condition may exceed 90 per cent.<sup>17, 54</sup> In the acute stage intracranial surgery is of little value. Evacuation of an intracerebral hematoma is definitely indicated if the patient survives the initial episode and the hematoma is large enough to cause actual mass compression or if it progresses.<sup>51, 52, 55, 56</sup>

Meyer and Bauer evaluated hypotensive therapy during the acute stage by a controlled study.<sup>28</sup> They reported statistically significant decreases in mortality in the treated group. Therefore, it would seem that hypotensive agents should be used in this condition.

Although the outlook for therapy of cerebral hemorrhage related to hypertension is dismal, data from several sources indicate that the incidence of cerebral hemorrhage is decreasing and that this may well be related to antihypertensive drugs.<sup>57-59</sup> Aurell and Hood demonstrated a significant decrease in cerebral hemorrhage and an increase in the average age of individuals experiencing hemorrhage after the advent of good antihypertensive therapy.<sup>58</sup> One must be cautious in drawing conclusions as to cause and effect, but there may be a relationship. It is advisable to treat gradually, since a rapid drop in blood pressure may precipitate ischemic disease.

I will not discuss arteriovenous malformations and the rarer causes of intracerebral hemorrhage.

### **SPECIFIC THERAPY — ISCHEMIA AND ISCHEMIC INFARCTION**

Cerebral embolism is usually secondary to extracranial disease. The diagnosis is based on the evidence of sudden cerebral dysfunction in an area supplied by an artery and the ability to demonstrate either a source capable of producing emboli and/or evidence of embolic phenomena elsewhere. Cerebral embolism may occur in association with atrial fibrillation or other arrhythmias, myocardial infarction with mural thrombus, acute or subacute bacterial endocarditis, heart disease without arrhythmia or mural thrombus, cardiac surgical procedures, nonbacterial thrombotic endocardial vegetations, paradoxical embolism in congenital heart disease, atherosclerosis of the aorta and carotid arteries, fragmentation of thrombi in cerebral arteries or in pulmonary veins, air emboli following trauma to lung or neck or following decompression and fat emboli associated with fractures of marrow bones.<sup>2</sup> The ideal treatment for this condition insofar as is practicable is preventive. In all cases, the primary condition should be treated. Although the causes of infarction may be different, the results of actual brain tissue death produce problems requiring similar treatment. Therefore, the specific treatment for the infarction of the brain will be discussed with ischemic disease associated with atherosclerosis.



Countless specific forms of treatment for ischemia and ischemic infarction have been reported. It will be impossible to review the vast number of types of therapy that have been reported as being ideal but have ultimately been proven to be of no value or dropped by general consensus. Some of these will be mentioned in passing and some in more detail.

**Treatments Assumed to Increase Cerebral Blood Flow:** Before Kety and Schmidt devised the nitrous oxide technique using the Fick Principle to actually measure cerebral blood flow, many drugs and procedures were advocated for this purpose. Such drugs as aminophylline, nitrites, iodides, adrenalin, benadryl, nicotinic acid, alcohol, and histamine were all proposed on this basis, but none actually increased cerebral blood flow.<sup>60, 61</sup> At one time, bilateral stellate ganglion block was popular on the assumption that it alleviated cerebral vascular spasm and increased cerebral blood flow.<sup>62-65</sup> In most cases of ischemia, either with infarction or transient, vasospasm is not a major factor.<sup>66, 67</sup> None of these drugs or procedures has been shown to be of any value in any scientifically valid study.

The most potent agent to increase cerebral blood flow is carbon dioxide. Some reasoned that since cerebral ischemic disease was related to decreased blood supply that carbon dioxide inhalation might be the therapy of choice.<sup>68</sup> A major defect in this reasoning is a failure to recognize that in an area of absent or decreased blood flow the carbon dioxide tension is already

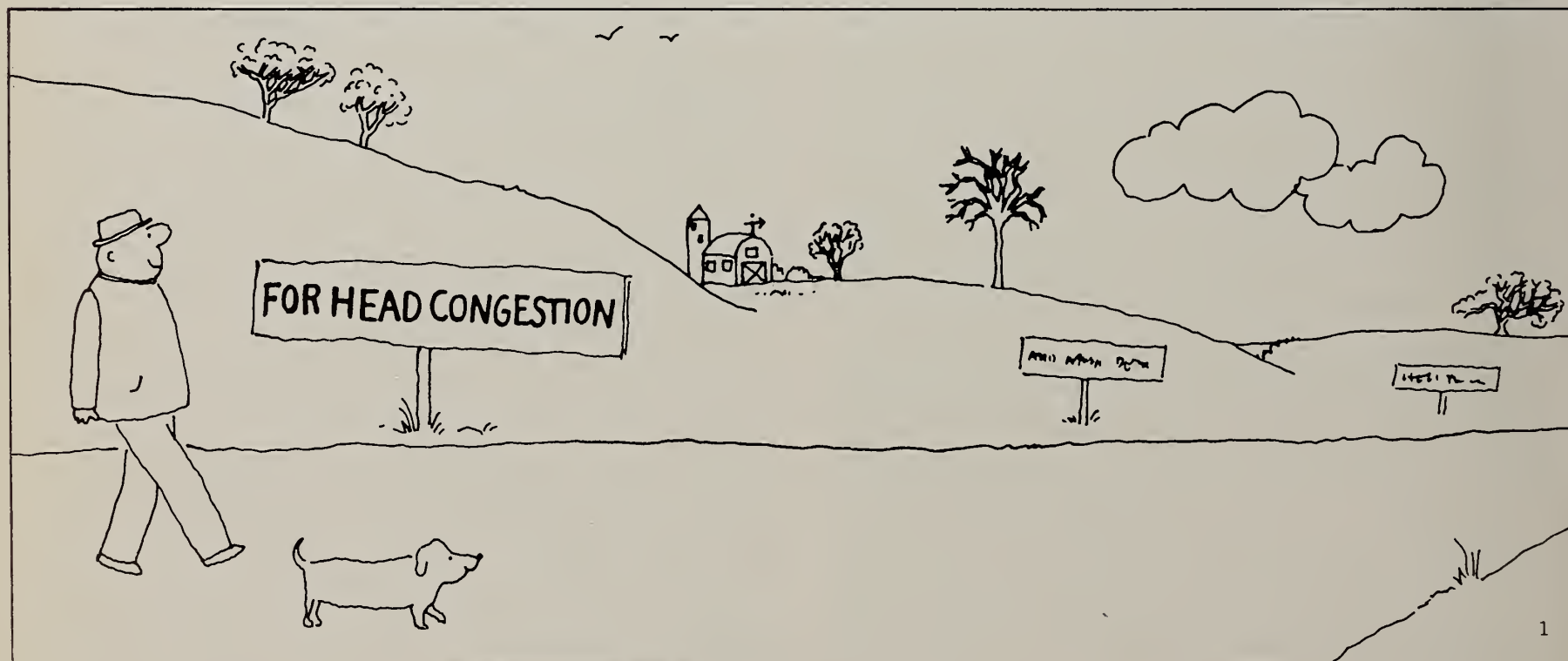
much higher than could possibly be created artificially.<sup>69</sup> Hoedt-Rasmussen et al reported a luxury perfusion syndrome: which was described as hyperemia in regions with an adequate local arterial pressure and with increased carbon dioxide tension.<sup>70</sup> Carbon dioxide therapy was tested clinically by Millikan. Although this was not a random study, it did compare a treated group to a comparable untreated group; he found no significant difference in results between the two groups.<sup>71</sup>

Papaverine increases cerebral blood flow.<sup>72</sup> Meyer and his group compared patients treated by intravenous papaverine with controls.<sup>73</sup> A significant functional improvement in the treated group was noted, but there was no difference in mortality. Unfortunately, although objective tests were used, the scorer was not blinded as to which group received the drug and which received placebo.

**Steroids:** Steroids were reported as producing excellent results in an uncontrolled study.<sup>74</sup> A controlled study was repeated, and the patients in the cortisone group actually had a trend toward increased mortality.<sup>75</sup> However, the exceptional patient with a large infarction with edema causing increased intracranial pressure might benefit from parenteral steroids.

**Anticoagulants:** Many papers have been written concerning the efficacy of anticoagulant therapy. To my knowledge at least five large well-designed controlled studies have been performed.<sup>76-82</sup> All five come to essentially the same conclusions that there tends to be an in-

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crease in mortality in all types of ischemic disease treated by anticoagulants on a long-term basis and a decrease in the number of episodes of transient ischemic attacks and possible benefit in evolving infarction was described. Despite this, Pearce et al found no difference in transient ischemic attacks in their study of control versus treated groups.<sup>83</sup> Individual investigators have reported controlled studies where there is a suggestion of favorable results in very long-term therapy for six months to a year after infarction or in association with embolic phenomena.<sup>84, 85</sup> It is apparent that if this therapy has any value at all, it is not clear cut. My personal conclusions from these studies are that I will not treat a patient with infarction with anticoagulants at any time. I will consider treating patients with transient ischemic attacks if they are so frequent that they interfere with activities of daily living, and then only when the patient agrees to take the increased risk.

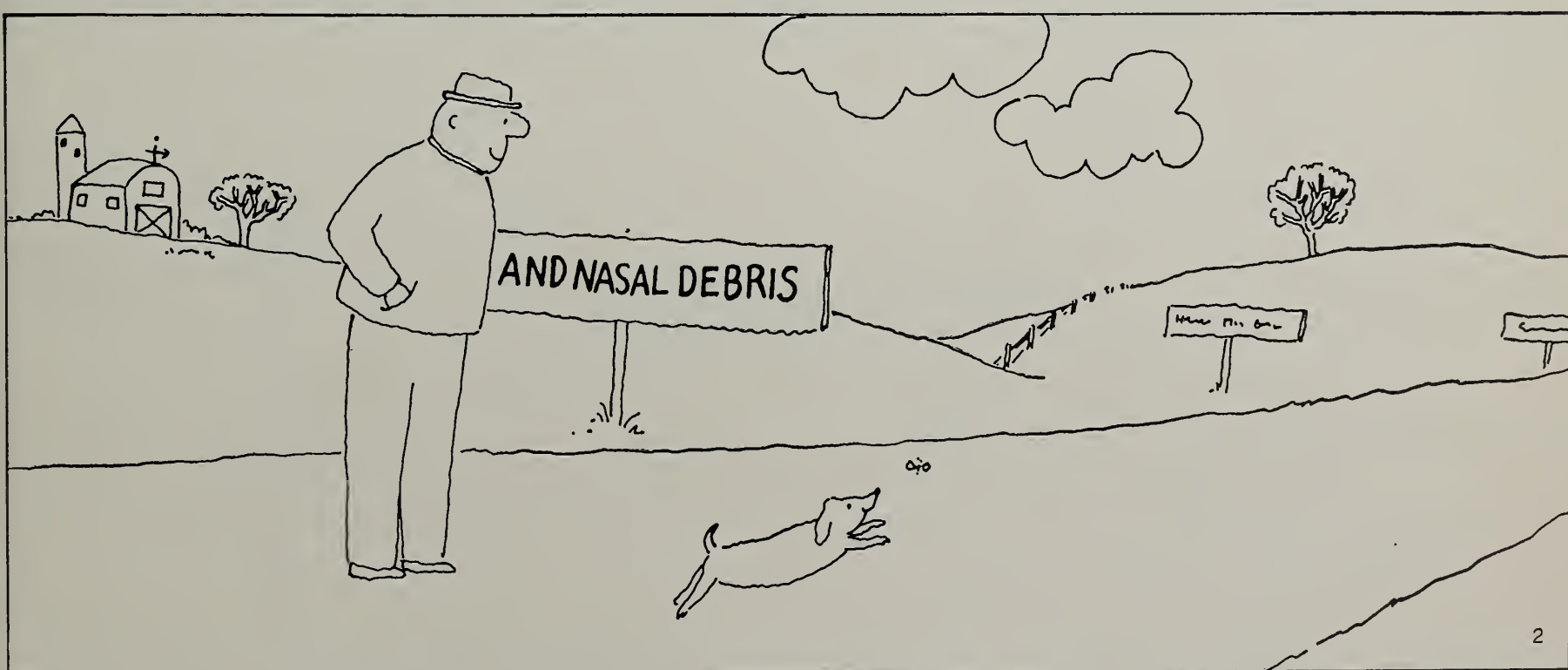
**Fibrinolytic Agents:** Although theoretically of value,<sup>86</sup> Meyer et al showed that they were dangerous clinically.<sup>87</sup> They reported a significantly higher death rate in 37 treated patients as compared to 36 controls.

**Estrogens:** McDowell et al in a controlled study using Premarin demonstrated that the treated group did worse than the controls.<sup>88</sup>

**Hydrogen Peroxide:** Urschel reported a single individual with basilar artery insufficiency treated with intra-arterial hydrogen peroxide.<sup>89</sup> Early angiographic and clinical improvement was maintained after a six month follow up. Further studies are necessary.

**Surgery:** The value of surgical treatment of atherosclerotic lesions in the extracranial portions of the carotid and vertebral arteries is still in the process of evaluation. Some authors report the results of surgical therapy in many hundreds of patients and others in as few as one. Almost all are merely skilled technical feats, for as yet there is no scientific study which objectively compares the results of surgery and medical therapy.<sup>90-95</sup> Unfortunately, the criterion of re-establishment of the lumen in a diseased vessel and a good blood flow at the time of operation is not an adequate criterion of success. A cooperative scientifically valid study supported by the National Institutes of Health is in process to compare surgical versus non-surgical treatment.<sup>96</sup> To my knowledge to this date no clear cut preference between medical and surgical treatment has been reported.

If isolated atherosclerosis in a single vessel precipitates disease, it is only a contributor since there is good evidence that in a healthy young individual a vessel may be occluded with no change in clinical findings.<sup>33-38, 97</sup> Faris et al performed transbrachial percutaneous angiograms on 43 healthy male prisoner volunteers and found that 53.6 per cent demonstrated some type of arterial lesion, and 23.2 per cent had more than one artery affected.<sup>98</sup> No significant difference from a group of 68 male patients with cerebral vascular insufficiency was noted. Although many of us think that extracranial vascular surgery may have a place, this has not been determined.



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**Clofibrate:** Although the presence of elevated cholesterol and other lipids has not been clear cut in patients with cerebral vascular disease, recently there has been some interest in the possibility that these drugs will decrease atherosclerotic disease. Acheson and Hutchinson reported a preliminary study comparing patients with cerebral vascular disease who received Clofibrate to a control group.<sup>99</sup> A total of 106 patients was studied. No significant difference was obtained, although there seemed to be a trend for decreased recurrence of disease in those treated. A double-blind controlled study might soon be initiated to evaluate the long-term benefit of this drug.

**Hypotension:** The dangers of a sudden drop in arterial blood pressure have been described, and the value of hypotensive medication in cerebral hemorrhage related to hypertension has been noted. Although at first it may seem inappropriate, we must now discuss hypotensive therapy in ischemic vascular disease. Meyer et al have demonstrated in hypertensives that cerebral blood flow was increased by decreasing arterial blood pressure.<sup>100</sup> A double-blind controlled study has been initiated to compare patients with cerebral vascular disease who are treated by hypotensive agents with those who are not.<sup>101</sup> In 1964, John Marshall compared 39 hypertensive patients treated with hypotensive agents and compared these to 42 control patients.<sup>102</sup> All were treated after a non-embolic infarction. Statistical analysis revealed a significant decrease in further cerebral vascular

accidents in men and a trend for a decrease in further accidents in women. These studies suggest that hypertensive patients who have ischemic cerebral vascular disease should be treated cautiously with antihypertensive medication. The drop in arterial pressure should be done gradually and maintained over long periods.

To conclude the discussion of specific therapy it seems obvious that the **seventh principle of therapy** is that **no treatment program that could conceivably be of harm should be initiated unless well-designed scientific studies have shown the treatment to be of value when tested by recognized statistical techniques.**

#### SUMMARY:

The seven principles of therapy in cerebral vascular disease are:

**First Principle:** Rule out diseases that mask as cerebral vascular disease.

**Second Principle:** Be aware of, diagnose, and treat the rarer causes of cerebral vascular disease (especially those that are specifically treatable).

**Third Principle:** Diagnose and treat associated disease.

**Fourth Principle:** Diagnose and treat diseases that may precipitate a cerebral vascular accident.

**Fifth Principle:** Devise a total treatment program to prevent, recognize, and treat complications associated with bed rest.

**Sixth Principle:** Obtain maximum function of residual abilities.

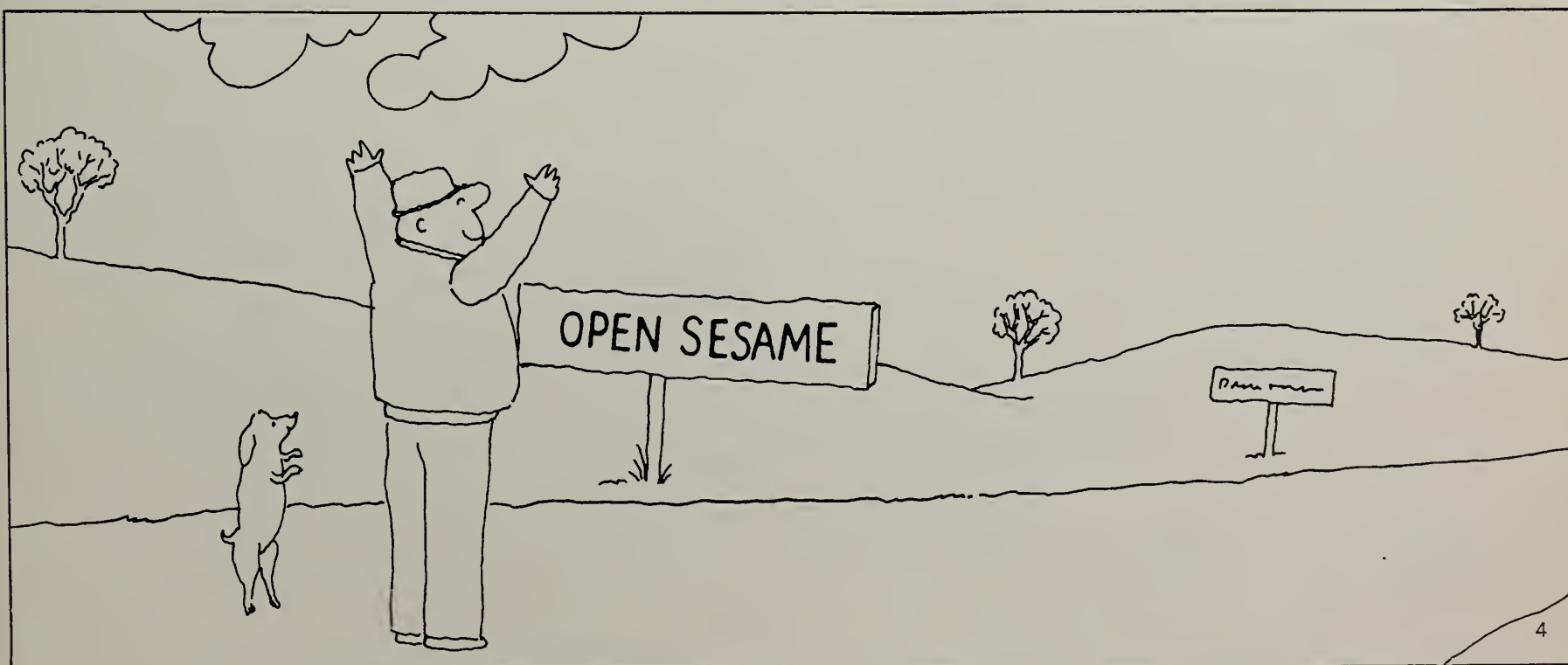
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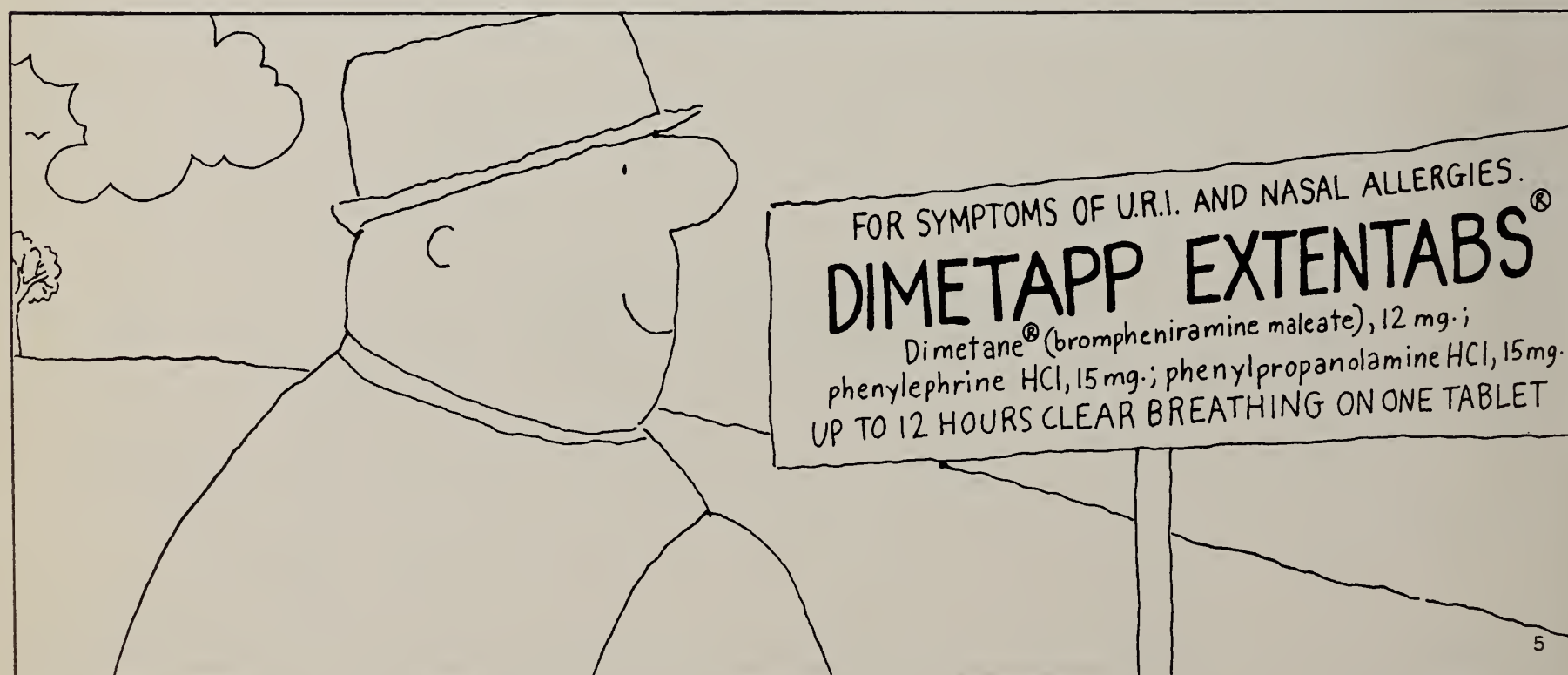
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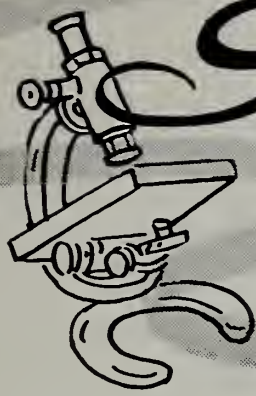
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# Scientific P A P E R

## NEUROLEPTANALGESIA AND ANESTHESIA:

Experiences in 60 Poor Risk Geriatric Patients\*

By

Jose C. Reyes, M.D.\*\*  
G. Thomas Wier, M.D.\*\*\*  
Nyel H. Moss, M.D.\*\*\*\*  
Jose B. Romero, M.D.\*\*  
Robert Hill, C.R.N.A.

### INTRODUCTION

Neuroleptanalgesia has drawn much enthusiasm in continental America in the last five years. There have been many reports in the literature of its great use and safety for all kinds of patients and for all types of operative procedures. Of special interest are some isolated reports of its usefulness in the very-poor-risk, elderly patient.

This clinical work was designed to further study the suitability of neuroleptanalgesia and anesthesia in a county general hospital which has a fairly large proportion of elderly patients in its anesthetic population; for major surgery of both planned and emergency procedures.

### MATERIALS AND METHODS

Sixty patients were studied. All patients were 65 years old and over; the youngest was 65 and the oldest was 93. Table 1 shows that 6 (10 per cent) were considered in A.S.A. physical status 2; 40 (66 per cent) in physical status 3; and 14

(24 per cent) were in physical status 4. Table 2 lists, according to site, the operative procedures performed; all major.

TABLE 1

A.S.A. Classification of Physical Status		
Class 2	6	10%
Class 3	40	66%
Class 4	14	24%
Total	60	100%

TABLE 2

Surgery Performed with Innovar-Nitrous Oxide Anesthesia: Site of Operation	
Region	Cases
Skin and Appendages	9
Abdominal	31
Urinary and Reproductive	8
Thoracic	3
Head and Neck	5
Orthopedic	4
Total	60

No additional laboratory diagnostic procedures or therapy was requested by the anesthesiologist other than the routine work-up done on the surgical ward. Lead 2 of the E.K.G. was monitored continuously before and throughout the anesthetic period. All patients received 0.4 mg. atropine intravenously a few minutes be-

\*Supported by a Grant from McNeill Laboratories.

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fore induction. Forty of the patients received intramuscular barbiturate and hydroxyzine 45 minutes prior to the operation.

Anesthesia was accomplished according to the following experimental design:

- a) Twenty (20) patients, unpremedicated, were induced and maintained with intermittent injections of Innovar.
- b) Twenty (20) patients were premedicated with a barbiturate-hydroxyzine combination, then induced and maintained with a continuous drip of Innovar.
- c) Twenty (20) patients were premedicated as above, then induced with half of the usual dose of Innovar and an ultra-short acting barbiturate; maintenance was with either continuous or intermittent injections of Innovar.

Innovar injections were given, as outlined above, until the onset of sedation, drowsiness, or tranquility was noted. Then the face mask was applied with a nitrous oxide-oxygen gas flow in a ratio of 4:2 or 6:2. As soon as consciousness was lost, evident by the inability of the patient to respond to questioning or absence of lid reflex, a muscle relaxant, succinylcholine in the standard dose, was given to facilitate intubation. Oro-tracheal topical anesthesia was done with the use of a 4% xylocaine spray before intubation. Thereafter, patients were carried with a gas flow of nitrous oxide and oxygen in a ratio of 4:2 with moderate controlled hyperventilation. With changes in the vital signs (increased heart rate, elevation of blood pressure, increase in chest compliance) and other signs of lightening of anesthesia, incremental doses of Innovar were given as needed. A few patients received 0.5 cc. of sublimaze. D-tubocurarine was given, as necessary, because of the need of adequate relaxation for the progress of surgery.

At the end of the operation or at the start of skin closure, patients were given 100% oxygen and allowed to breathe spontaneously. All patients were brought to the recovery room and observed for the next 2-3 hours for changes in cardiovascular, respiratory, and central nervous functions until fully recovered. Patients with extensive abdominal and chest operations were placed on continuous positive pressure ventilation via endotracheal tube.

### RESULTS AND FINDINGS

Generally, in the first two groups, induction of anesthesia was accomplished in 10-15 minutes; and, with the use of pentothal in the third group, in only a few minutes. Hypoventilation was noticed in all 60 patients. Chest rigidity in 5 patients. Due, probably, to pre-induction intravenous atropine, no significant changes in pulse rate were observed.

Forty-eight of the sixty patients in the present study (80%) exhibited a very mild drop in blood

pressure, ranging from 10 to 15 mmHg. below the preanesthetic level. Four (4) patients developed a drop in pressure of 30 mmHg. or more. These patients gave a history of cardiac disease and were on digitalis and diuretics and had generalized arteriosclerosis. They were treated first with intravenous methoxamine without any significant rise in blood pressure, even after repeated doses. Hypotension was corrected only with the use of intravenous aramine. One of the patients developed acute myocardial infarction and is presented as the case report. A few patients showed extra-systoles during intubation, but those disappeared spontaneously after adequate oxygenation. There were no remarkable S-T or T-wave changes other than the patient in the case report.

There were no significant differences in maintenance doses of Innovar in the three groups of patients. The work was designed, as outlined previously with the intent of finding whether premedication and different techniques of administration of Innovar would influence the dose of anesthetic, both for induction and maintenance. Since we did not have a large group of patients and a homogeneous population, we cannot draw a meaningful conclusion.

Patients observed in the first 36 hours postoperatively revealed the following: No narcotic or sedative was required in the first 6 to 8 postoperative hours for pain or restlessness, even with those on respiratory assistance. All patients were awake and responding verbally 5 minutes after termination of anesthesia.

### COMPLICATIONS

The data presented in Table 3 is self explanatory. One patient was still apneic at the end of the operation. The surgeon had completed the wound closure in 10 minutes, some 15 minutes only, after the last dose of 2 cc. of Innovar. This patient resumed spontaneous respiration after intravenous nalline. One patient complained of nausea. Inadequate anesthesia refers to the necessity for supplementation with a more potent agent — penthrane. The anesthesiologist, unfamiliar with Innovar anesthesia, felt that two patients were too awake and elected to continue management with penthrane. Both during penthrane anesthesia were hypotensive and had to be given intermittent vasopressors. One of these patients died 20 hours later because of pre-existing disease.

### CASE REPORT

A 65 year old white male admitted to St. Paul-Ramsey Hospital and Medical Center with arteriosclerotic obliterans of left leg, generalized



arteriosclerosis, mental retardation, and E.K.G. evidence of an old inferior infarct and premature atrial beats. Patient gave a history of acute arterial occlusion of right leg three years prior to present admission, for which above-knee amputation was done under spinal anesthesia without any complications. A year after that, he had an acute myocardial infarction from which he recovered.

**TABLE 3**

Complications Associated with Innovar-Nitrous Oxide Anesthesia

Circulatory	4
Respiratory	1
Chest Wall Rigidity (during induction)	5
Extrapyramidal	0
Gastrointestinal	1
Inadequate Anesthesia	2
Death	1
Total	14

Preoperatively, he was given seconal, 100 mg., vistaril, 100 mg., and atropine, 0.4 mg., administered intramuscularly 45 minutes prior to surgery. Anesthesia was induced with 6 cc. of Innovar given in a space of 6 minutes. After a topical spray of 4% xylocaine, patient was intubated following administration of 60 mg. of intravenous anectine. Patient was promptly maintained with a nitrous oxide and oxygen gas mixture in a 4:2 ratio. Ten minutes later, however, the blood pressure progressively dropped and remained at a very low level. Vasoxyl, 4 mg., given intravenously and repeated twice without any resultant elevation of blood pressure. Patient meanwhile was very pink and warm to the touch. The E.K.G. tracings, though, showed further depression of S-T segments. Aramine, 2 mg., was given intravenously and blood pressure rose to the preoperative level; but, after 5 minutes, the previous drop was again apparent. Although aramine in a diluted solution was given intermittently it was impossible to stabilize the blood pressure at a satisfactory level and surgery was cancelled. Patient was sent to recovery room with endotracheal tube in place and given respiratory assistance.

The patient was seen by a cardiologist and admitted to the coronary care unit. Because serial enzyme studies demonstrated a slight, constant elevation in conjunction with the onset of atrial fibrillation and flutter, the cardiologist felt that the patient had developed a slight infarct. Patient recovered uneventfully with treatment at the coronary care unit.

#### SUMMARY AND CONCLUSION

Sixty patients were anesthetized with Innovar and nitrous oxide for a variety of major surgical procedures. Induction was characterized by

hypoventilation, generally mild and insignificant hypotension, and, chest wall rigidity.

Recovery from anesthesia was very prompt and free of excitement. Nausea occurred in one patient only. All patients were free of pain for long periods of time and postoperative ventilatory assistance was tolerated very well by the entire group.

Innovar should be used with caution in elderly patients with severe generalized arteriosclerosis complicated by coronary insufficiency and/or carotid artery insufficiency; and, possibly, avoided altogether with the patient in whom even mild hypotension would be a problem.

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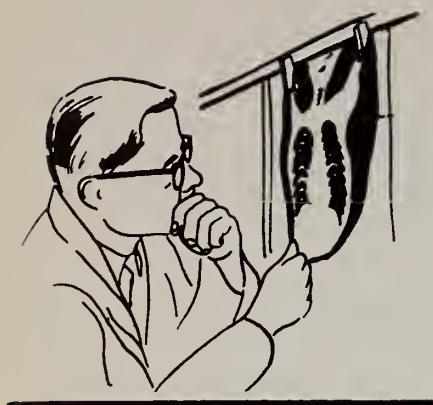


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## RADIOLOGIC CASE PRESENTATION No. 5

Martin Frank Petereit, M.D.\*

This 62-year-old white male was admitted to the hospital 3 months after the films in Figs. 3 and 4 were taken. He had a history of intermittent diarrhea covering a 25-year period. The past several months, he developed severe abdominal cramping (occasionally after eating) which was followed by severe diarrhea and mucus in the stools. Occasionally, he passed purulent material and/or large amounts of bright red (sometimes dark) blood rectally.

Physical examination revealed only slight tenderness in the mid-abdominal area. Sigmoidoscopy was negative.

Urinalysis was normal. The CBC revealed a slight microcytic anemia. The Mantoux test was negative. Two fresh stool specimens were negative for *Endamoeba histolytica*. A small bowel series was performed and it was normal. Figs. 1-4 demonstrate a lesion in the left colon which becomes progressively worse during a 17 month period.

The lesion was resected. The patient made an uneventful recovery and was discharged from the hospital 10 days after admission.

### DIFFERENTIAL DIAGNOSIS

Possible causes for this lesion include ulcerative colitis, granulomatous colitis, amebiasis, lymphoma and tuberculosis.

**Ulcerative colitis** almost always begins in the rectosigmoid area, but any isolated part of the colon can be affected. However, it would be very unusual for this disease to begin proximal to the rectosigmoid area. It usually appears in the 20 to 40 year age group. In the early stage, the roentgenographic findings are negative in 33% of cases. The earliest sign is **spiculation** in the rectosigmoid portion of the colon. Bloody diarrhea, abdominal cramps and tenesmus are common during an acute attack. The spiculation is

due to the presence of small ulcerations in the bowel wall. The ulcers become larger. The non-ulcerated islands of mucosa become inflamed, the submucosa hypertrophies and pseudopolyps result. Haustral markings soon disappear. The colon becomes irritable and shows evidence of diffuse spasm. As the disease process becomes chronic, the colon appears tubular, rigid, shortened and narrowed.

Ulcerative colitis is not a segmental disease, i.e., "skip areas" are not seen. Fistula formation is uncommon. In chronic cases, strictures are



**Fig. 1.** Barium enema film of a 62-year-old white male. There is a 15.0 cm. segment of descending colon which shows loss of haustral markings, lack of distensibility and small mucosal ulcerations. The remainder of the colon is normal.

\* Medical X-ray Center, Sioux Falls, South Dakota.



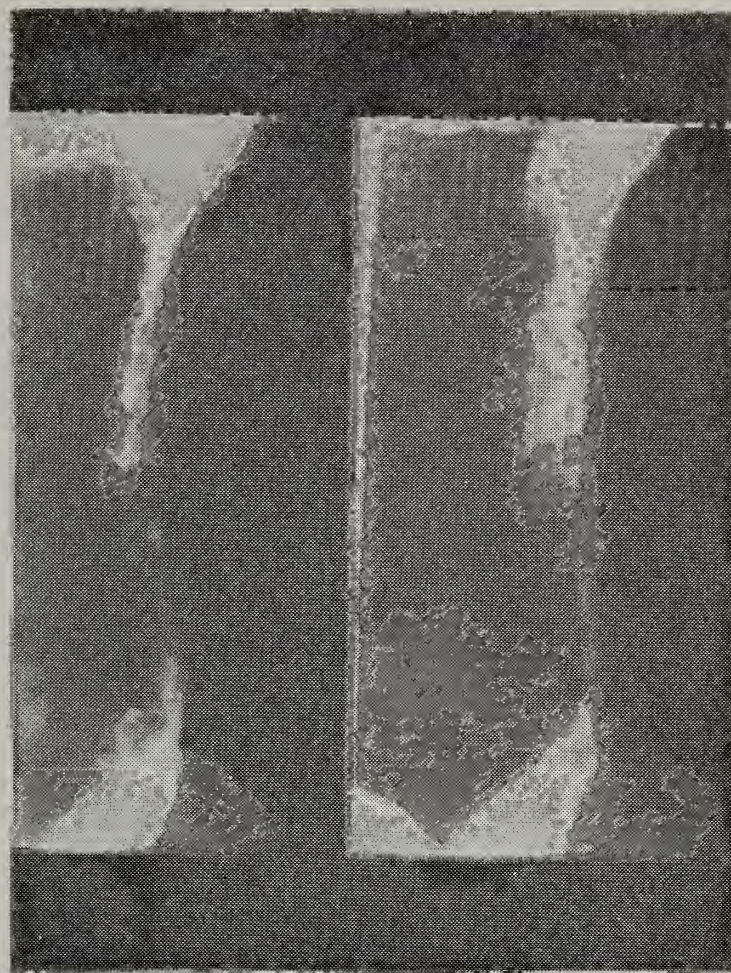


**Fig. 2.** Nine months later. Deeper ulcerations and small filling defects are seen involving the same segment of bowel.



**Fig. 3.** Eight months later. The filling defects have become larger, producing a cobblestone pattern. The colon proximal to the lesion shows very minimal dilatation and retention of fecal matter, indicating a minimal degree of obstruction.

common and carcinoma may occur. However, the disease has usually been present more than 15 years before malignant degeneration occurs.



**Fig. 4.** Two spot films of the lesion as seen in Fig. 3.

**Granulomatous colitis** (Crohn's disease of the colon) usually starts in the right colon and it occurs in a slightly younger age group than is seen with ulcerative colitis. Clinical features include fever, malaise, diarrhea, weight loss, anemia and an increased sedimentation rate. **Exaggerated haustral markings** have been described as the earliest sign of this entity in children. Later, there is a loss of haustra. Mucosal ulcerations develop which become deep and linear. These ulcers alternate with giant cell granulomas, giving a "cobble-stone" appearance. Fistulae may develop from the ulcers. The granulomatous process results in gross thickening of the bowel wall. The disease does not seem to extend to the rectum.

Severe bleeding, shortening and malignant degeneration is not seen with GC. Complete obstruction is rare, even though short segments may become markedly narrowed. GC may co-exist with granulomatous disease of the small bowel and presumably represents the same process.

The main diagnostic features of GC are: longitudinal ulcerations, transverse fissures, eccentric involvement, narrowing, relatively rigid walls (due to intramural fibrotic changes), pseudodiverticula (the result of enlarging ulcerations), marked pseudopolypoid changes producing a coarse cobble-stone pattern and internal fistulae.



In late stages, UC and GC may be difficult to differentiate pathologically or radiographically. Diverticulitis, primary carcinoma of the colon and foreign body perforation may simulate GC if a short segment is affected.

**Amebiasis** most often affects the cecum and ascending colon, but any portion of the colon may be involved. This disease produces ulceration, scarring and fistulae. Also, amebic granulomas may form which cause marked thickening of the bowel wall. The appearance may simulate carcinoma or GC.

**Lymphoma** of the colon is rare. Multiple areas of involvement are common and the spleen is usually enlarged. Many of these lesions do not bleed. Perforation and abscess formation are not uncommon. This disease affects younger age groups.

**Tuberculosis** of the bowel is rare since the advent of anti-tuberculous drugs. It is common as a primary disease in countries where bovine testing is not done. In this country, the disease is almost always associated with cavitary pulmonary tuberculosis. It most often affects the ileocecal area. Ulcerative and hypertrophic types are seen, but the ulcerative type is more common. Hyperirritability or marked spasm (Stierlin's sign) are typical of the ulcerative type. Fistulae may be present. Later, scarring is produced. At times, the disease may simulate carcinoma or amebiasis.

Less likely diagnostic possibilities include typhoid fever, scleroderma and secondary amyloidosis. A segmental mesenteric vascular accident would not be a serious consideration, since this condition produces an entirely different picture.

#### **PATHOLOGY REPORT**

The microscopic picture revealed extensive areas of mucosal ulceration and replacement by vascularized granulation tissue (which contained plasma cells, lymphocytic cell exudates and numerous eosinophils). Also, occasional granulomata composed of multinucleated giant cells were seen in the wall. The diagnosis was "chronic granulomatous colitis."

#### **SUMMARY**

A case of granulomatous colitis involving the descending colon is presented. Differential diagnostic possibilities are discussed. Whenever this entity is considered, a small bowel study is in order, since another segment of diseased bowel may be found.

#### **REFERENCES**

Available on request.

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# CLINICOPATHOLOGICAL CONFERENCE

*From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Departments of Pathology of the Hospital and of the School of Medicine of the University of South Dakota*



JOHN F. BARLOW, M.D.\*\*  
*Pathologist-Editor*

WARREN JONES, M.D.\*  
*Internist-Discusser*

## 68 YEAR OLD CAUCASIAN MALE WITH SUDDEN ONSET OF CHEST PAIN AND LOUD CARDIAC MURMUR

### CASE NO. 74 795

This 68 year old Caucasian male was admitted to Sioux Valley Hospital with a chief complaint of pain in the chest.

Ten years prior to admission the patient had had similar transient chest pain but electrocardiograph and laboratory studies after admission did not reveal evidence of infarction. The pain which prompted the present admission was substernal and crushing. It lasted three hours and was not associated with dyspnea, hemoptysis, increased severity with position or breathing or associated with sweating. He did have several episodes of vomiting and was still in mild pain when he was seen by a local physician. There was nothing significant in his past history or review of systems except for a transurethral resection one year previously without incident.

Physical examination revealed a well developed, well nourished white male in no distress — pulse 56 and regular; blood pressure 100/70 (on admission); respirations 22/minute and temperature 98°F. There were no significant abnormalities of the head or neck. Respiratory excursions were equal bilaterally. There was no abnormality in percussion or auscultation of the chest. The heart had normal sinus rhythm. There was a pronounced pansystolic murmur over the entire precordium. There was a thrill along the left sternal border associated with the murmur which was described as Grade V with

radiation to the axilla and less radiation to the base. The murmur was described as maximal along the lower left sternal border and in the right parasternal area. There were no diastolic murmurs, gallops, or split sounds. The pulses were equal in the extremities. It is to be noted this murmur was not present in the local physician's office the day previous to admission. There was no gallop, rub, extrasystoles.

Abdominal examination showed no organs or masses. The liver was not palpable.

Clinical pathology data: urinalysis — straw colored; specific gravity 1.028; pH 5.0; protein 1+; glucose, trace. Ketone bodies, moderate amount; hemoglobin-negative; 0-1 leukocytes per high power field, 2-3 erythrocytes per high power field, occasional epithelial cells, many mucous threads. Hemoglobin 15.9 grams per 100 ml., red count 5.50 million/mm<sup>3</sup>, hematocrit 49 Vol.%, mean corpuscular hemoglobin 30 micrograms, mean corpuscular volume 90 cubic micra, mean corpuscular hemoglobin concentration 33%, total leukocyte count 13,800 per mm<sup>3</sup> with a differential of 69% neutrophils, 6% neutrophilic bands, 24% lymphocytes, and 1% monocytes. The red cells were normochromic and normocytic. The platelets were adequate on smear. A serology was non-reactive. Initial prothrombin time — 13 seconds with an 11 second control. The patient was anticoagulated with coumarin derivatives. Serum glutamic oxaloacetic transaminase was 175 units, lactic dehydrogenase was 870 units one day after admission. Electrocardiogram showed an evolving anterior myocardial infarction. Chest film showed some degree of cardiac enlargement

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with minimal to moderate congestive changes. The patient's hospital course was characterized by hypotension with a systolic blood pressure of 70 to 90. The pulse was regular and remained between 60 and 70 with no definite rhythm disturbance. The neck veins became markedly distended and the liver enlarged to 1 cm. below the costal margin. The pronounced heart murmur continued and there were intermittent rales at the lung bases. The patient continued to be hypotensive despite digitalization. The patient had problems with intermittent hyponatremia associated with diuretics. The serum sodium ranged between 120 and 130 meq/L. The potassium ranged between 4.3 and 5.1 meq/L. The patient had azotemia first noted about 12 days after admission when a blood urea nitrogen of 70 mgs/100ml was obtained. The urea nitrogen rose to 86 mgs/100 ml. terminally. The azotemia was attributed to poor renal perfusion due to severe cardiac failure. His abdomen became distended and he became lethargic and he expired on the eighteenth hospital day.

DR. JONES: The protocol gives us a brief history and physical examination and certainly seems to document a myocardial infarction. Of major interest to us is the presence of a loud murmur. A Grade V murmur means that it almost hurts your ears with the stethoscope but you cannot quite hear it with the stethoscope off the chest. I do not have any clear idea of the radiation of the murmur.

\*DR. ROSSING: There was no characteristic radiation of the murmur. I would like to mention that this was not heard in a physician's office just before admission to the hospital.

DR. JONES: Yes, this is a very helpful piece of information.

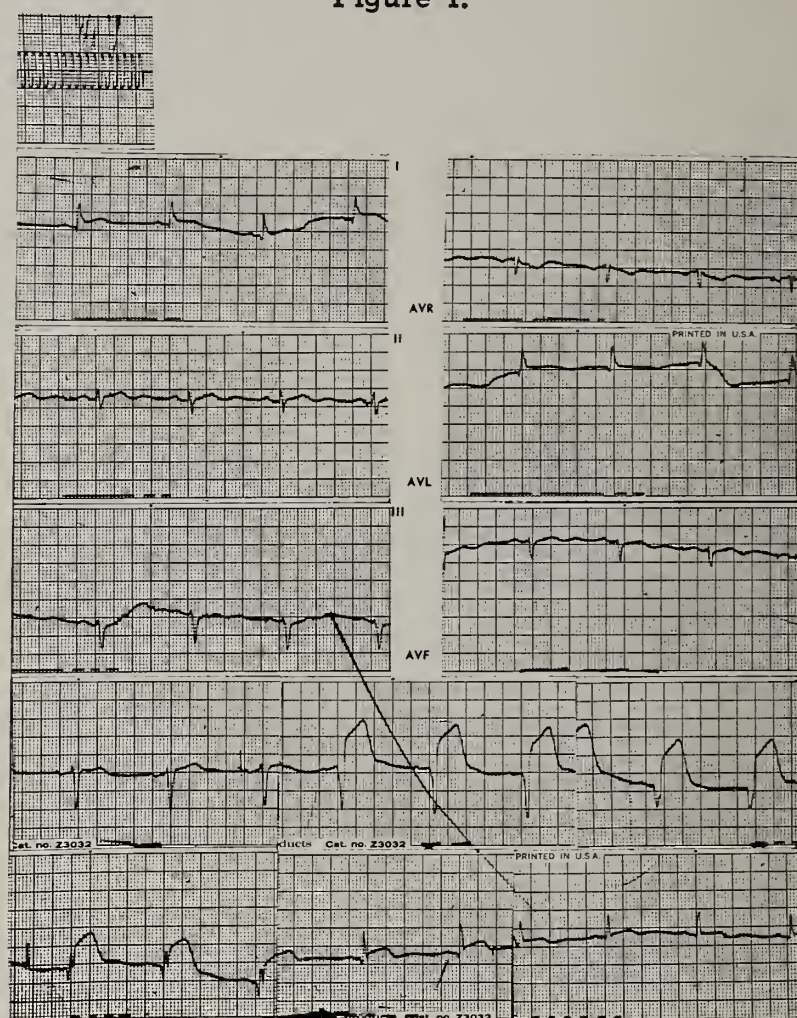
\*\*DR. FERRELL: Was there any radiation of the murmur to the back?

DR. ROSSING: There was slight radiation to the back. The patient's clinical course was quite complicated but I would like to make the point that it had been characterized largely by signs of increasing right heart failure with distention of the neck veins and liver and minimal signs of left heart failure.

DR. JONES: The laboratory data is not very helpful. The urine concentrated quite well indicating initial good renal function. There was ketonuria which may have indicated some mild starvation.

The hemogram probably was indicative of mild dehydration. The white count was slightly elevated but the differential count was normal. The serum enzymes - LDH, SGOT - were elevated indicating that there was recent myocardial infarction of fairly large size. The elevated BUN later in the course of the disease probably reflects diminished renal perfusion especially since there was a good concentration with a specific gravity of 1.028 early in the patient's course. The ECG shows an evolving anterior myocardial infarction. The x-ray shows a moderate congestion.

Figure I.



Electrocardiogram — shows typical anterior myocardial infarction. Subsequent tracing showed evolving pattern.

The diagnosis is documented by a classic ECG. Therefore, why a CPC on this case? The patient's course was not a typical one for myocardial infarction. He had progressive hypotension, signs of right heart failure, and died despite digitalization. Usually if a patient can be brought through the first 8-10 days of a myocardial infarction, his prognosis is good. This rule of thumb did not apply to this patient.

One thing that may cause delayed mortality in myocardial infarction is the fact that the patient had not completed the occlusion of the coronary artery and further infarction was taking place. Usually when the patient stops having chest pains the physician can be some-

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\*\*Internist, Sioux Valley Hospital, Clinical Faculty, School of Medicine, University of South Dakota.



what assured that the infarction has completed and the major problem subsequently is prevention of the complications of the myocardial infarction. On the other hand, a patient who has intermittent episodes of chest pain throughout the hospitalization often has not completed the infarction and may go on to die because of more extensive infarction of the myocardium.

The patient probably had completed his infarction before hospitalization and therefore died of a complication. I will go through a list of some of the complications of a myocardial infarct: First, shock is a cause of death in a myocardial infarction but usually occurs in the first 24-72 hours. Severe congestive heart failure is certainly a cause of death and this patient did indeed die of congestive heart failure with the right sided-failure being more predominant than the left side. This was evidenced by distended neck veins and large liver. We do not know what caused that severe heart failure, although it could have been a rather large infarction. The heart failure that most patients develop after a myocardial infarction is often mild and transient early in the course and clears up spontaneously. This all occurs in the first few days of hospitalization.

Another major complication of acute myocardial infarction is rhythm or conduction defects but none are mentioned in the protocol. I presume that they did not contribute to the patient's death.

Arterial or venous embolization may occur. Pulmonary emboli from phlebothrombosis of the leg veins are the most frequent type of emboli and can contribute to further congestive failure. These are seen particularly in the severe infarction where there is prolonged bed rest. Another source of embolization is from thrombosis on the mural surface of the endocardium overlying the infarction. Infarctions of the brain, the viscera or extremities may arise from this source. We have no reason to suspect that arterial embolism is present in this case. The clinical picture of the patient is consistent with that of pulmonary emboli from venous thrombosis. The patient was in the therapeutic range evidently for anticoagulation and this would tend to reduce the chance for venous thrombosis. Also, I would expect pulmonary embolization from a venous source to have occurred before the 18th hospital day. However, I cannot completely exclude pulmonary embolization in this case as it may be difficult to diagnose, especially if the patient was confined to bed rest for most of the period of his hospitalization.

Another complication is intercurrent infection particularly bronchopneumonia. There is no mention of fever or other indication of such a complication. I will discard it.

Rupture of the heart is a cause of sudden death from myocardial infarction. This usually occurs between the 3rd and 8th days after the infarction. This period of time, of course, pathologically, is when the necrosis is at its greatest extent and the myocardium in the area of the infarction is the softest. Rupture of the heart usually occurs suddenly and the diagnosis is not made before death but in retrospect at autopsy. The rupture of the myocardium brings about a massive pericardial hemorrhage and pericardial tamponade with death in seconds to a minute or so. Extension of the myocardial infarct by extension of the thrombus in the coronary artery and subsequent further myocardial infarction is another complication. We have no evidence of that here.

Cardiac or ventricular aneurysm is another complication of myocardial infarction and occurs in 3% to 15% of the cases. These do not usually cause death during the early hospitalization of the patient but bring about myocardial insufficiency leading to severe cardiac disability over a period of months or years. The mechanism of the cardiac insufficiency is that during systole there is bulging of the aneurysm and less blood is injected into the aorta than during the usual cardiac cycle.

\*DR. KOUGL: Do these aneurysms rupture?

DR. BARLOW: Very rarely do myocardial aneurysms rupture.

DR. JONES: Rupture of a papillary muscle might occur during myocardial infarction and is not unlikely here. It is a rare complication and occurred in less than 1% of 578 acute myocardial infarctions studied at autopsy in one particular series. Rupture of the papillary muscle may also occur due to trauma or bacterial endocarditis. A loud holosystolic murmur loudest at the apex of the heart is present in the case of a ruptured papillary muscle. The murmur is transmitted to the left axilla as a rule. The murmur is usually lower pitched and less intense than that due to an interventricular septal defect. However, the onset of dyspnea and left sided heart failure usually follows quickly after the rupture of a papillary muscle. This is due to sudden onset of incompetence of the mitral valve. Acute pulmonary edema not uncommonly follows and death may occur within

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\* Intern, Sioux Valley Hospital.



hours to a day or so after rupture of a papillary muscle. Therefore, there is not a great deal of time for surgical repair of a ruptured papillary muscle.

The final complication that I would like to discuss is rupture of the interventricular septum which is what I believe this patient had. This occurs less commonly than rupture of the myocardium. It occurs in 0.5-1% of cases of transmural infarction. It may occur within the first few hours after infarction and usually shows on the ECG as an antero-septal myocardial infarction. Perforation is usually small and single in the lower and muscular portion of the interventricular septum. Sizes range from pinpoint to as large as 6 cm. There may be multiple small perforations. Unlike ventricular rupture into the pericardium rupture of the interventricular septum can be diagnosed premortem. The patient does go into cardiac failure mostly of the right ventricular type. In analysis the hemodynamic load in interventricular septal rupture is on the right ventricle. The patient will usually live for a week to several weeks. These findings fit the patient in this protocol.

I would like to close my discussion by saying that in centers where there are cardiac surgeons they are trying to diagnose the complication of the perforation of the interventricular septum early. They actually repair these even in the case of acute myocardial infarction. The mortality is so high without surgical repair that it seems worthwhile. Some of these patients have survived surgery and without surgery the patients have very little chance of survival.

#### DR. JONES' DIAGNOSES:

1. ACUTE MYOCARDIAL INFARCTION WITH PERFORATION OF THE INTERVENTRICULAR SEPTUM
2. SEVERE CONGESTIVE HEART FAILURE SECONDARY TO ABOVE

#### PATHOLOGIC DISCUSSION:

DR. BARLOW: The diagnosis was as described. There was an acute occlusion of anterior descending coronary artery accompanied by a recent antero-septal myocardial infarction. There was an accompanying severe fibrinous pericarditis which was most likely due to the transmural nature of the infarct. The azotemia may have contributed but this is unlikely since the pericarditis was localized to the area of the infarction. No friction rub had been heard clinically. This picture demonstrates the rupture through the interventricular septum secondary to the infarction (Fig. II). It was mentioned that there was severe right heart failure. This can be

documented pathologically by the severe chronic passive congestion of the liver giving rise to the characteristic nutmeg appearance (Fig. III). In addition, there were pulmonary congestion, hemorrhage and edema. Each pleural cavity contained 1500 cc. of clear serous effusion. Microscopically, the cardiac infarction showed evidence of healing.

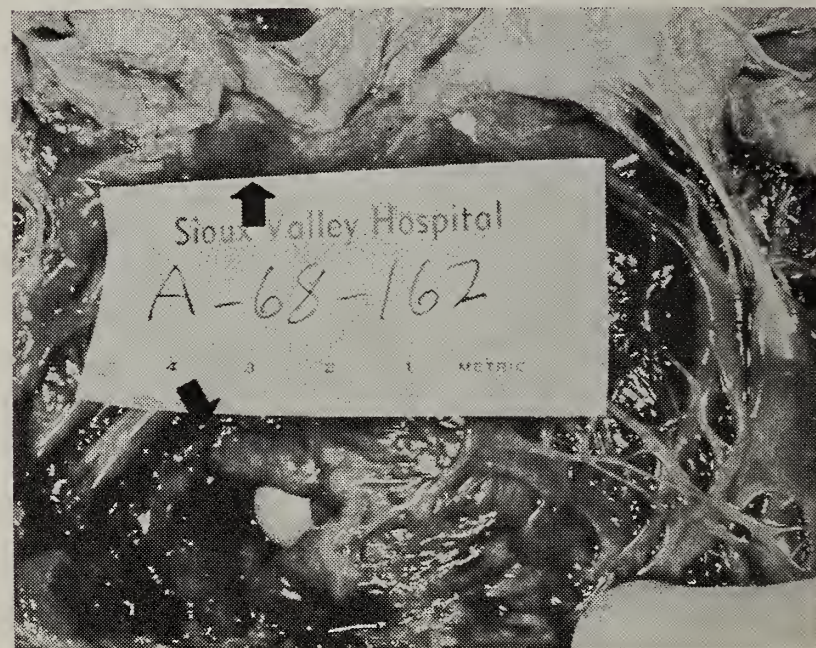
\*DR. ORTMEIER: What did the kidneys show?

DR. BARLOW: There was a moderate degree of benign nephrosclerosis.

#### FINAL PATHOLOGIC DIAGNOSIS:

1. Coronary heart disease, severe with
  - a. Thrombosis of anterior descending branch, left coronary artery, acute.
  - b. Antero-septal myocardial infarction, recent.
  - c. Perforation of interventricular septum.
  - d. Pericarditis, fibrinous.
2. Pleural effusions, 1500 cc. bilateral.
3. Pulmonary atelectasis secondary to (2).
4. Pulmonary congestion and edema.
5. Chronic passive congestion of liver with central necrosis.
6. Atherosclerosis of aorta, moderate.
7. Nephrosclerosis, benign, bilateral.
8. Pancreatic fibrosis, focal.

Figure II.



Upper arrow points to aortic valve for orientation. Lower arrow points to gloved finger in muscular interventricular septal defect caused by myocardial infarction.

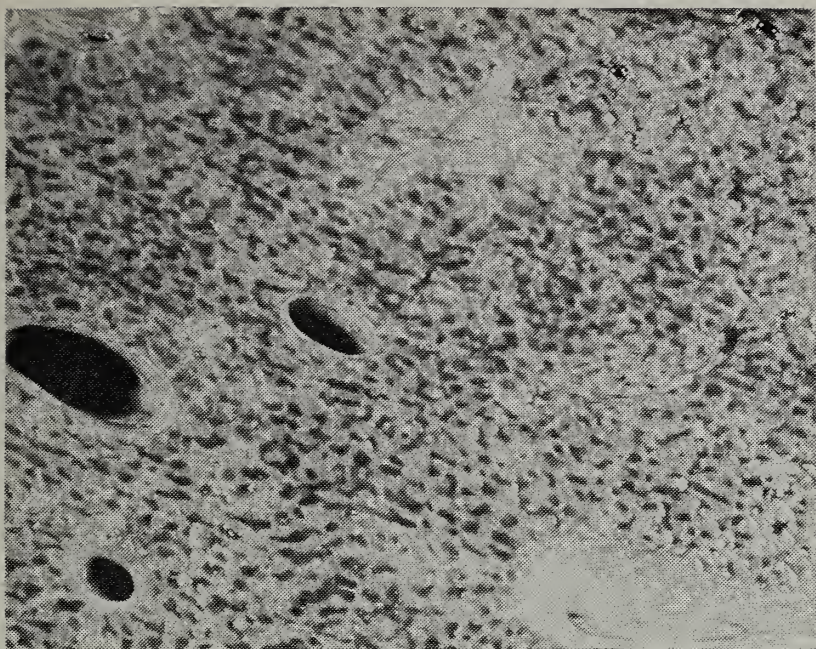
Are there any other questions?

DR. JONES: I would like to demonstrate my phonocardiogram simulator which is now used as a teaching device at the Medical School (Dr. Jones demonstrated murmurs and extra sounds on the phonocardiogram simulator contributed by Dr. Sundet of Kadoka.)

\* General Practitioner, Sioux Valley Hospital.



Figure III.



"Nutmeg liver" due to chronic passive congestion.

DR. GROSS: Would someone explain to me in a few short words the use of enzymes in the diagnosis of myocardial infarction?

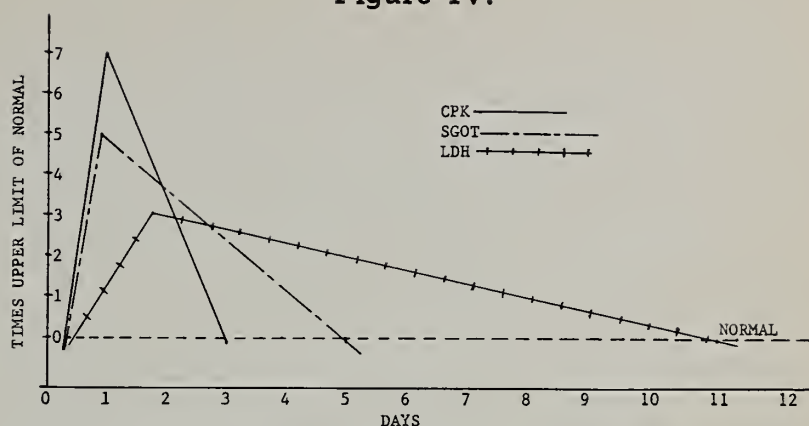
DR. BARLOW: I will try to give a brief summary by discussing three enzymes determinations commonly used — the creatine phosphokinase (CPK), the serum glutamic oxaloacetic transaminase (SGOT) and lactic dehydrogenase (LDH).

The CPK is the newest of the three. The enzyme is in very high concentration in the brain and in muscle—skeletal, cardiac and uterine. The test was first and is still used as a very sensitive indicator of skeletal muscle damage. More recently it has been used as an indicator of myocardial damage. Since it does not have a high concentration in the liver, it will not be falsely elevated by chronic passive congestion of the liver as the SGOT is. It was thought not to be elevated in pulmonary infarction or damage but this has been questioned. The CPK is elevated in about 90% of cases of infarction and goes to high levels. The onset of elevation is at 3-6 hours. The peak elevation is at 24 hours. However, the value returns to normal at three days. This early return to normal is a disadvantage. A person may not seek medical attention until several days after the infarction.

The SGOT is a time honored test. The onset of elevation is 6-12 hours and the peak is at 24 hours. The value returns to normal at 5-7 days (later than the CPK). The SGOT is elevated in passive congestion of the liver or any liver damage but not in lung disease (see Fig. IV).

The total LDH is probably the oldest test. The onset of elevation is 11 hours. It does not rise to high levels, but stays above normal up to 11

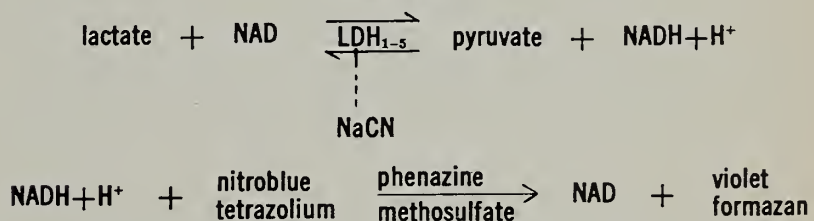
Figure IV.



The diagram shows the pattern of rise of the three enzymes commonly used in following and diagnosing myocardial infarction. The LDH isoenzymes show a pattern similar to total LDH but abnormality persists longer.

days (see Fig. IV). This prolonged elevation is an advantage for the diagnosis of an infarction which may have occurred over a week previously. The chief disadvantage of the LDH is that lactic dehydrogenase activity is found in most organs. Therefore, it is elevated due to damage of any of these organs. Therefore, it is quite nonspecific. This nonspecificity can be obviated by clinical correlation or chemically by the performance of LDH isoenzymes. The determination of isoenzymes may be performed by electrophoretic, heat inactivation, immunologic or chemical inhibition techniques. We prefer the electrophoretic technique followed by staining the pattern using the formation of a formazan from nitroblue tetrazolium (Fig. V). The electrophoretic separation is accomplished on cellulose acetate.

Figure V.



This is the demonstration of the reaction used to identify the LDH isoenzymes after electrophoretic separation on cellulose acetate.

\*DR. LANG: The LDH isoenzymes are useful, it should be mentioned, in indicating specific organ damage elsewhere.

DR. BARLOW: Yes, I may as well discuss this subject now that I have a captive audience. It has been found that LDH activity exists not as one form but as several forms or isoenzymes (isozymes). This is best understood if one can appreciate the structure of the LDH molecule. It is a tetramer composed of two types of polypeptides. One polypeptide is designated as H

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because it is found in heart muscle. The second is designated as M since it is found in skeletal muscle or liver. If you figure out the possible combinations of H and M in a tetramer, you come out with five isoenzymes (Fig. VI). These can be separated by electrophoresis and are designated by numerals according to the migration toward the cathode.

Tetramers				
HHHH	HHHM	HHMM	HMMM	MMMM
Isoenzymes				
LDH <sub>5</sub>	LDH <sub>4</sub>	LDH <sub>3</sub>	LDH <sub>2</sub>	LDH <sub>1</sub>

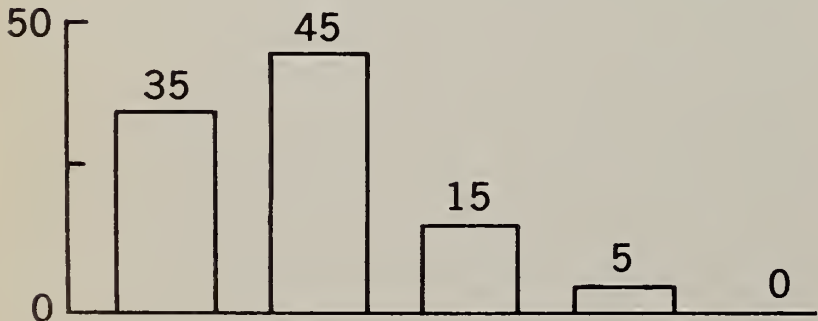
Actually, there are two classifications as indicated in Fig. VI. One is the American classification which we have adopted and the European classification which some prefer because it follows the electrophoretic migration similar to that used for protein electrophoresis. Note in Fig. VI regardless of classification, the heart fractions are the fastest migrating and liver or skeletal muscle fractions are the slowest migrating and that they are at opposite ends of the pattern.

	Figure VI.				
	ANODE (+)	specimen application point ↓			CATHODE (-)
European numerical	LDH <sub>1</sub>	LDH <sub>2</sub>	LDH <sub>3</sub>	LDH <sub>4</sub>	LDH <sub>5</sub>
American numerical	LDH <sub>5</sub>	LDH <sub>4</sub>	LDH <sub>3</sub>	LDH <sub>2</sub>	LDH <sub>1</sub>
Electrophoretic	α <sub>1</sub>	α <sub>2</sub>	β	γ <sub>1</sub>	γ <sub>2</sub>
Typical tissue source	myocardium			liver	

Note the two different classifications. The more commonly adopted is the European nomenclature although we have used the American nomenclature in this hospital.

The normal serum has a usual pattern of isoenzymes. LDH<sub>4</sub> is the highest with LDH<sub>5</sub> slightly lower than LDH<sub>4</sub> (American classification) (Fig. VII).

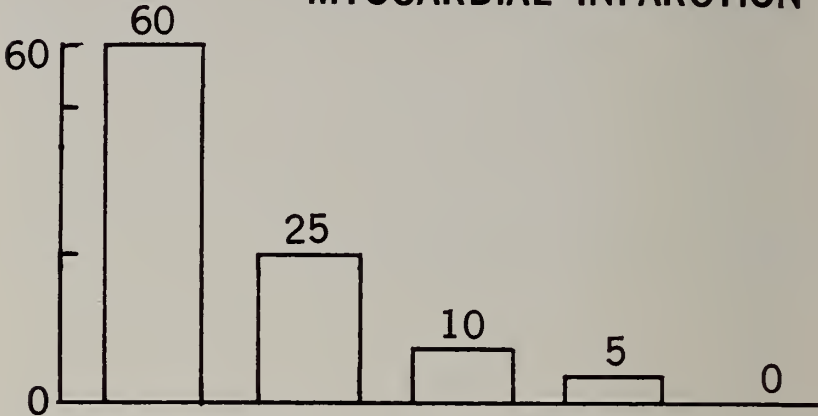
Figure VII.  
NORMAL HUMAN SERUM



This is the normal pattern for LDH isoenzymes. The heart fraction (LDH<sub>5</sub> by American classification) is at the left.

When myocardial damage occurs, there is elevation of LDH<sub>5</sub> and slightly of LDH<sub>4</sub>. This gives a characteristic reversal as depicted in Fig. VIII. This alteration of pattern may be found in small myocardial infarcts without elevation of the total LDH. This elevation may persist for up to two weeks after an infarction.

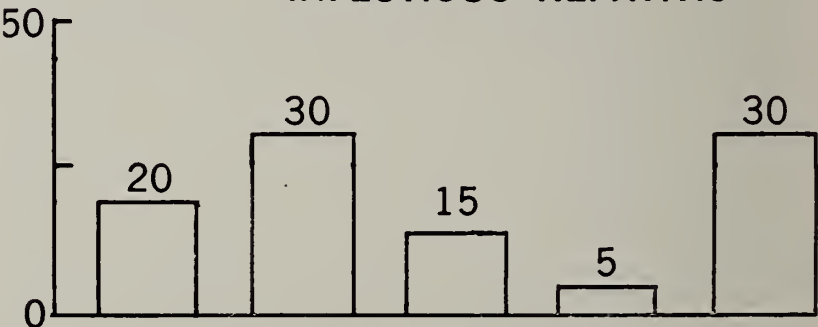
Figure VIII.  
MYOCARDIAL INFARCTION



This is a typical pattern for myocardial infarction with reversal of usual LDH<sub>5</sub> to LDH<sub>4</sub> ratio in comparison with normal pattern.

A pattern similar to that of myocardial infarction may also be seen in pernicious anemia, after hemolysis, brain or kidney damage. It is very easy to tell liver damage from heart damage since it has an entirely different pattern as noted in Fig. IX.

Figure IX.  
INFECTIOUS HEPATITIS

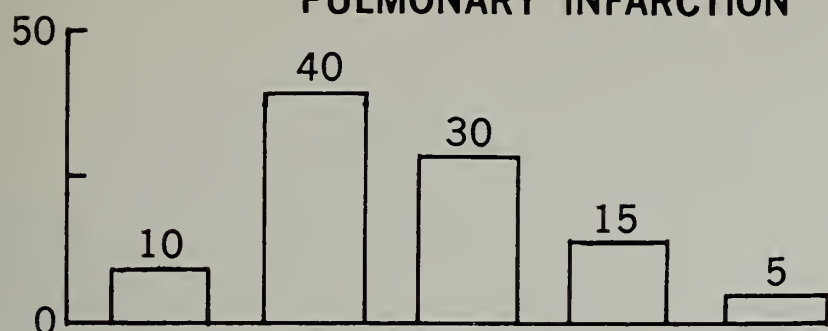


This is the pattern often seen in liver damage and shows a striking difference from that of myocardial infarction.

One excellent indication for LDH isoenzymes has been post-operatively. The surgeon may worry about the possibility of a myocardial infarction having occurred under anesthesia. Since skeletal muscle contains large quantities of CPK, LDH and SGOT, a determination of these enzymes is not very helpful since skeletal muscle injury occurs after most surgical procedures and all of these are elevated. The LDH isoenzyme pattern can differentiate skeletal muscle damage from myocardial damage. LDH isoenzymes can also sometimes be helpful in distinguishing pulmonary infarction from myocardial infarction in our experience (Fig. X).



Figure X.  
PULMONARY INFARCTION



This is a typical pattern of pulmonary infarction. In a patient with chest pain this pattern can help establish the diagnosis of pulmonary as opposed to myocardial infarction.

DR. LANG: I should also like to point out that the degree of elevation of the enzyme is somewhat proportional to the amount of myocardial damage. Also that as Dr. Jones pointed out further episodes of infarction may complicate a patient who has had an initial infarction. This can be indicated by a secondary peak in serial enzyme determination.

DR. BARLOW: Yes, serial enzyme determinations are often much more meaningful than a single test similar to the electrocardiogram. A normal result on any of these enzyme tests on a specimen taken a few hours after chest pain followed by a rise the following day is diagnostic of tissue necrosis. **Also, a word of warning!** Although theoretically the enzyme determinations sound good, they are misleading sometimes and require meaningful clinical correlation.

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### BLUE SHIELD'S ROLE IN NEW MEDICAID REGULATIONS

A number of conflicting stories has been circulated in recent weeks concerning the development of the new regulations on Title 19 payments.

The controversy began in April with an announcement by the Department of Health, Education and Welfare that a Medicaid fee schedule should be based on the lowest prevailing schedule of payments by Blue Shield for its private programs.

If this concept had been implemented, it would have undoubtedly caused severe professional relations problems for Blue Shield. However, Blue Shield was able to play a significant role in assisting in the implementation of the new regulations which have been found to be generally acceptable by the medical profession and which stress physician involvement in utilization review.

First, after John Veneman, HEW under secretary, announced that Medicaid payment schedules would be based on the lowest prevailing Blue Shield schedule, James D. Knebel, NABSP assistant executive vice president, met with Veneman to request additional detailed information.

A few days later, John W. Castellucci, NABSP president, wrote HEW secretary Robert Finch that the proposal announced by Veneman required study and urged the appointment of a Task Force comprised of representatives of Blue Shield, AMA, and government to work on the matter. Castellucci pointed out that the Medicaid program has a scope of benefits to which most Blue Shield fee schedules do not relate.

In May, Knebel reported to the Ad Hoc Task Force on Medicaid to which he had been appointed that educational programs and professional peer review of utilization were the most dependable ways to stem the cost of Medicaid.

Knebel also spoke in favor of paying physicians on the basis of their usual, customary and reasonable charges and suggested that a floor be established below which Medicaid payments could not go.

During the months of May and June, liaison between HEW and Blue Shield continued. It became apparent during this period that HEW had abandoned the idea of a Medicaid fee schedule and was aware that utilization review was a more effective approach to containing the costs of Medicaid.

The new regulations, finally published July 1, establish a ceiling on government payments to physicians under the Title 19 program. They do not reduce fees currently paid under Medicaid programs, and in certain cases they allow states to increase payments if they have been substandard. Methods of payment are generally left to the states to work out.

As recommended by Blue Shield, the government will place heavy stress on utilization review and in making certain that the payment methods in the regulations will be adhered to by the carriers and intermediaries.

But remember that the government's efforts to establish maximum payments under Medicaid will not affect Blue Shield's method of payment under its private usual, customary and reasonable charge programs. Medicaid is a program for the indigent and the medically indigent. It sets limits on the payments which physicians are to receive as full payment for care rendered to Medicaid recipients.



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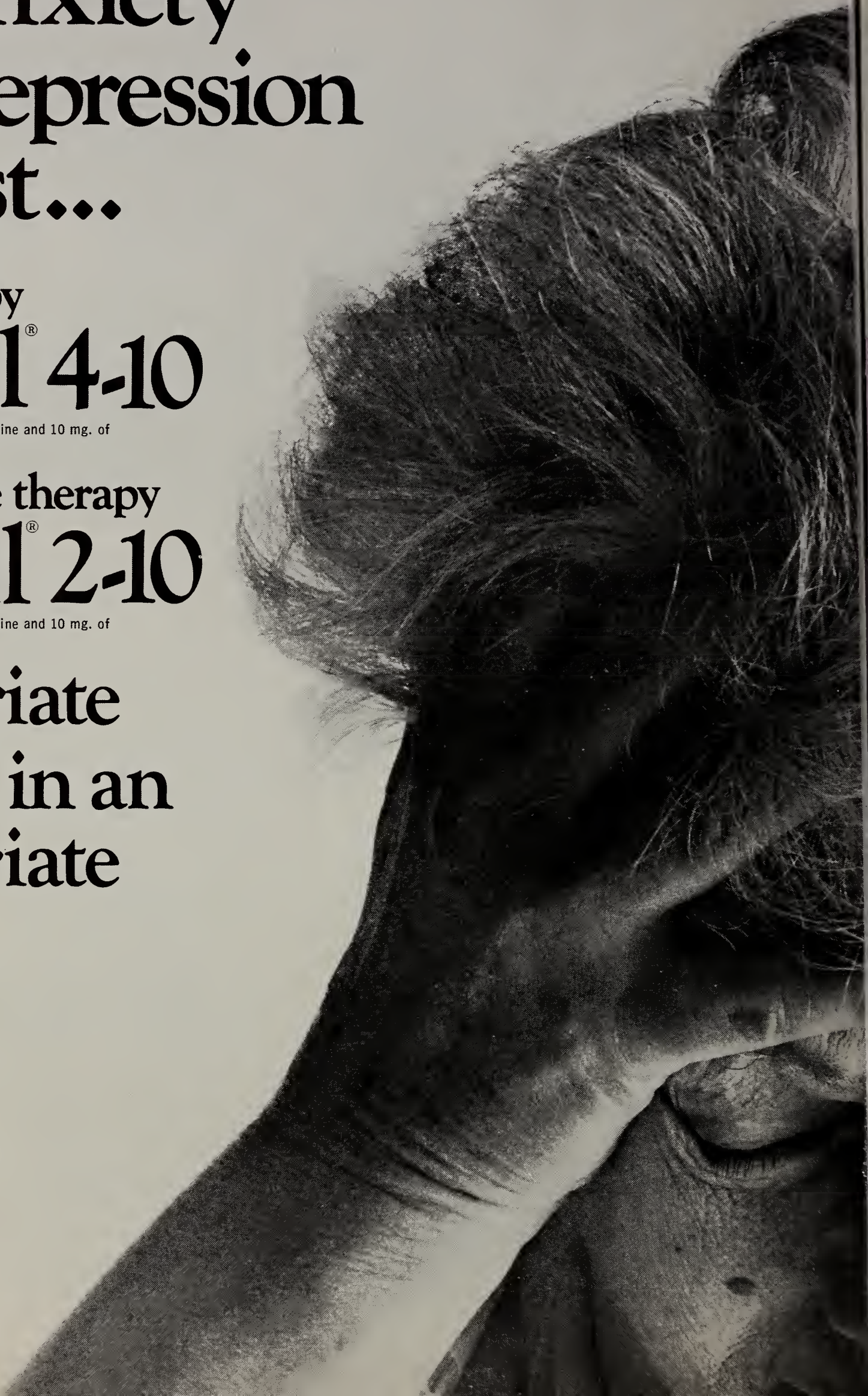
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# BASIC SCIENCE REPORT

John Zimmer, Attorney  
South Dakota State Board of Basic Sciences

In 1939 the South Dakota Legislature passed legislation requiring every practitioner of the healing arts, except certain named and limited exempt professions, to be licensed to practice the healing arts in South Dakota. The 1939 Act set the following fee schedule for the Basic Science Board:

1. Fee for examination — \$15
2. Fee for reciprocal recognition of an examination in the basic sciences in another state of the United States, before a Board of Examiners in the Basic Sciences — \$25
3. Fee for an endorsement of a certificate issued to another state — \$5

Following the adoption of this act, the Basic Science Board made a number of attempts to prevent violations of such Act. By 1954, the Board had made Nineteen (19) attempts to prosecute persons who were illegally practicing the healing arts without a Basic Science license. None of the attempts were successful.

In 1954 the Executive-Secretary of the South Dakota Medical Association made a survey in the State of South Dakota to determine the extent of quackery in this State. From such survey, he concluded that there were Three Hundred (300) quacks practicing the healing arts full time in South Dakota. It was estimated that their gross income amounted to Three Million (\$3,000,000) Dollars per year. Such parties had reached a point where they were advertising in newspapers and one of them, Lilly Hilde of Chester, South Dakota, regularly advertised on KELO-TV.

The persons illegally practicing were primarily designated by themselves as Reflexologists. There were also some parties that called themselves Naturopaths. They maintained regular offices and upon the walls thereof had various diplomas certifying to their qualifications and awarding them doctor degrees. Such practitioners were located in almost every County throughout the State of South Dakota. One County, with a population of 8,268, in 1954 had Eight (8) illegal practitioners practicing full time.

In 1954 the problem was considered such, that a special meeting was called of representatives of the Medical, Osteopathic and Chiropractic As-

sociations. As a result of this meeting, an Inter-professional Health Council was formed to work on this problem.

In 1954 John Foster, the then Executive-Secretary of the South Dakota Medical Association, contacted me as States Attorney of Turner County and stated that the then Attorney General, Phil Saunders, requested that I, as States Attorney of Turner County, prosecute a person illegally practicing in Turner County. The purpose of this particular request was to test the law to determine if law changes needed to be made to strengthen the same or if the numerous defeats resulted from improper handling of the cases.

A paid investigator was sent by the Basic Science Board to the office in Irene of Ingvald Bach. Based upon such investigation a prosecution was started in Turner County which resulted in the first conviction obtained under the Basic Science Law. The jury found him guilty and it resulted in a fine being imposed of One Hundred (\$100) Dollars. However, the convicted party, shortly after his conviction, moved to another County and reopened his previous practice.

In December of 1954, I met with the Inter-professional Health Council at Sioux Falls, South Dakota at their request. At that time, I suggested to the Council that one method of successfully combating quackery in the State of South Dakota would be to add injunctive relief to the Basic Science Act and permit the Board to hire an attorney of their choice.

In 1955 efforts to amend the Basic Science law to include injunctive relief by legislation were successful. The amendment also permitted the Board to hire their own legal counsel. The injunctive relief portion to the Basic Science law became effective July 1, 1955.

In September of 1955 investigators from the Division of Criminal Investigation for the State of South Dakota were sent into the office of Lilly Hilde at Chester, South Dakota for the purpose of obtaining evidence upon which to base an injunctive action. This action was brought in October of 1955. The investigation



and record in this case establish that such party had purchased the building and equipment of a former medical doctor in Chester, South Dakota and in 1954 had a gross income well in excess of Thirty Thousand (\$30,000) Dollars. The action was successful and the Court enjoined such party from further illegal conduct. Such party attempted to reopen shortly after the injunctive relief was granted. Evidence to this effect was obtained and criminal contempt proceedings were brought against her and resulted in her conviction.

The grandfather of illegal practitioners in South Dakota was a man past Sixty (60) years old, living and practicing in a small town, who admitted to the Court during his trial that in the Eight (8) years prior to such trial he had grossed Two Hundred Fifty-four Thousand (\$254,000) Dollars. He called himself a reflexologist. His theory was that all nerve endings were in the feet and that by working with the feet and removing calcium deposits, he could cure innumerable ills, including heart trouble and diabetes.

It was obvious that the funds received by the Basic Science Board from examination fees were insufficient to engage in the prosecution of quackery to the extent necessary.

In 1957, the Medical, Osteopathic, and Chiropractic professions requested the Legislature to adopt a Ten (\$10) Dollar annual renewal fee for Basic Science Certificates. Such annual renewal fees were designated by the Board for the handling of legal matters arising from violations of the Basic Science Laws.

Since 1955, the Board has investigated numerous quackery complaints. Investigations in some instances were made by agents of the Division of Criminal Investigations for the State of South Dakota working under the Attorney General; others were done by investigators paid directly by the Basic Science Board; and some were conducted based upon complaints of private parties. Based upon surveys and investigations the figures showing Three Hundred (300) quacks grossing Three Million (\$3,000,000) Dollars annually appeared conservative. All investigations were conducted through the efforts of the Basic Science Board and fully prosecuted by it with the Secretary of the Board in each case acting as plaintiff.

The Board of Basic Science Examiners since 1955 through actions brought by its Secretary has made approximately Fifty (50) court appearances. Three cases were tried on appeal to the

Supreme Court. Every case since 1955 has resulted in a judgment favorable to the Board. The most recent case was tried at Mitchell, South Dakota, on the 15th day of May, 1969. In this case a Mr. Robert Gabrielson, living near Salem, was found by the Court to be in contempt for violating an injunction previously issued. Such party was fined and admonished by the Court that any subsequent violations by him would result in the imposition of a jail sentence.

In addition to investigation and prosecution of illegal physical practitioners of the healing arts the Board over the years has had numerous matters involving the sale of fraudulent cures through supposed medicines. One example of these cases was a lady in Hot Springs who was selling a miracle elixir for Six (\$6) Dollars a bottle. One of the bottles was obtained by the Board and sent to the State Lab for analysis. It was found to contain nothing but water with a high mineral content. Such report stated that in effect the water was nothing but rusty water. The violating party was contacted on this and upon seeing the report was substantially upset because she had been paying Four (\$4) Dollars a bottle plus freight to receive the same from a California salesman.

In addition to the foregoing quackery matters the Board during the last Two and One-half (2½) years has been substantially involved in investigating cheating on Basic Science examinations. Evidence was obtained that cheating had occurred in South Dakota at the last examination in 1966. The cheating was promoted by a professional group stealing examinations throughout the country and selling them to Basic Science candidates for One Thousand Five Hundred (\$1,500) Dollars each. Such group operated in numerous states throughout the country.

Prior to 1966 the South Dakota Basic Science Board examinations consisted entirely of essay questions. At that time such examinations were not susceptible to cheating. A change was made in 1966 to multiple choice and true-false examinations to enable correcting to be done by computer. In November of 1966 copies of four of the five examinations to be given were stolen from the trunk of the car of the Secretary of the Basic Science Board by a professional ring involving stake-outs and a professional locksmith. Such persons were unable to obtain the anatomy examination because it was not in the possession of Dr. Kleibacher, the then Secretary of the Board, but was kept at the Medical School by



Dr. Rinker. During correction of the examinations it was noted that some parties scored extremely high in four examinations and miserably failed anatomy.

In conjunction with the U. S. District Attorney at Sioux City, Iowa, a full investigation was conducted and criminal prosecutions commenced in Federal Court for conspiracy in the use of the mails to defraud. The ring leaders involved were found guilty by the jury and sentenced. The Court dismissed the charges against those involved solely through buying the examination on the grounds that the criminal conspiracy act did not apply to them.

The evidence disclosed that approximately Thirty (30) different parties were involved in cheating in South Dakota. Part of these persons were persons examined in 1966 and who already had received South Dakota Basic Science Certificates. An action was commenced by the Board to void the certificates of such parties and upon such hearing the certificates of parties, upon whom evidence had been obtained, were cancelled. One of the parties appealed to the Circuit Court claiming the Board had no authority to attempt to cancel his certificate. Upon a trial in Circuit Court the Court sustained the authority of the Board to revoke.

At this time the Board has information of several other persons who might be illegally practicing the healing arts and whose activities require investigation. The position of the Basic Science Board is that their program must be an ongoing one encompassing the entire state and conducted within the limited funds available to the Board.

Over the years there have been a number of complaints against the activities of the Board, especially from those practicing illegally, and efforts were made to pass legislation to avoid prosecution by such Board. At one session such persons were successful in getting a bill exempting reflexologists and naturopaths through the Senate and appeared to have a good opportunity of passing the same through the House. At this session Dr. Herbert Ortman of Canistota, South Dakota, was chairman of the House Public Health Committee. Through his efforts it was possible to defeat such bill in committee and a smoke-out was unsuccessful.

On occasion there have been legislators and licensed doctors in the state of South Dakota who have complained about the Board and indicated a desire to eliminate it. One such effort was made before the Legislative Research Council during the summer of 1968. After a full hear-

ing before the Legislative Research Council such legislative committee by resolution determined that the past activities of the Board should be encouraged and continued without change.

Over the years the Board has received help and cooperation from Doctors licensed by the Board throughout South Dakota. The secretaries and/or executive secretaries of the Medical, Osteopathic and Chiropractic Associations have been especially helpful.

The Interprofessional Health Council consisting of Three (3) members from each Association, namely, the Executive-Secretary, the President of the Licensing Board and another person designated by the President of the Association, has throughout the years continued to advise and help with the Board programs.

Also, the help given by all Attorney Generals and Rol Kebach, head of the South Dakota Division of Criminal Investigation, has been essential to the work of the Board.

The present Basic Science Board members are:

W. A. Geib, M.D.  
Wendell F. Kessler, D.O.  
George C. Rinker, Ph.D.  
Sheldon J. Christensen, D.C.  
Robert Roy Kintner, Ph.D.

The present five Board members, and their predecessors, have spent numerous hours on basic science matters. They receive Ten (\$10) Dollars per day for their services. No member, past or present, has ever refused to give of his time when Basic Science matters required it.

The fees of the Board previously set forth for examination, reciprocity and endorsement, were the same from 1939 until July 1st of 1969 when a raise, passed in the last legislative session, goes into effect. The annual renewal fee set in 1955 remains unchanged.

It is my opinion that the people of South Dakota have been substantially benefited by the program of the Basic Science Board, which is financed entirely by examination, reciprocity, endorsement and annual renewal fees.

---

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FACT & LEGEND

## O

### BESITY WAS A MILITARY OFFENSE!

OVERWEIGHT ROMAN HORSEMEN WERE MADE TO FORFEIT THEIR MOUNTS AND BECOME FOOT SOLDIERS!



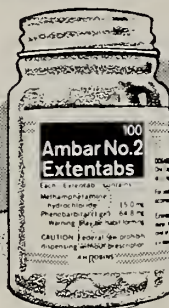
RECORDED ON AN ENGLISHMAN'S  
TOMBSTONE

JAMES PARSON  
DIED 1743  
HE HAD OFTEN EATEN A WHOLE  
SHOULDER OF MUTTON AND A  
PECK OF HASTY PUDDING

## SHAKESPEARE

WAS AWARE OF THE  
DANGERS OF OBESITY  
HE WROTE...

*Make less thy body hence  
and more thy grace,  
leave gormandizing;  
know thy grave doth  
gape for thee wider  
than for other men.*



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**BRIEF SUMMARY/Indications:** Ambar suppresses appetite and helps offset emotional reactions to dieting. **Contraindications:** Hypersensitivity to barbiturates or sympathomimetics; patients with advanced renal or hepatic disease. **Precautions:** Administer with caution in the presence of cardiovascular disease or hypertension. **Side Effects:** Nervousness or excitement occasionally noted, but usually infrequent at recommended dosages. Slight drowsiness has been reported rarely. See package insert for further details.

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# ECONOMICS



## THE UNDER SECRETARY OF HEALTH, EDUCATION AND WELFARE

Washington, D. C. 20201

July 1, 1969

Robert H. Quinn, M.D.

President

South Dakota State Medical Association

1320 S. Minnesota Avenue

Sioux Falls, South Dakota 57104

Dear Dr. Quinn:

As one of the Department's efforts to constrain the rising costs of the Medicaid program, we published today an interim policy regarding payments to physicians, dentists, and other individual practitioners for services rendered under title XIX (Medicaid). The policy was based on recommendations of a task force selected by Secretary Finch and composed of knowledgeable people in the health care community. The task force was asked to recommend policy that would control escalation of payments on both a short term and long range basis.

The committee conferred with representatives of various provider and consumer organizations, administrators of state Medicaid programs, and third party payers, and developed criteria for the policy. Among others, these were: 1) that it should cause the least administrative disruption possible in the title XIX States; 2) that it should encourage participation of practitioners in the program; and 3) that it should enable States and the Federal Government to predict costs.

The regulation published today provides that fee payments in effect on January 1, 1969, become the basis for reimbursement. The payments then in effect, whether on a usual and

customary basis, a fixed fee schedule basis, or some other basis, may be continued if they do not exceed the payments under the Medicare program.

From now until July 1, 1970, those States in which payments were less than the 75th percentile of customary charges in January 1969 may, with the approval of the Secretary of HEW, increase payments to physicians up to the 75th percentile of customary charges. States in which payments were above the Medicare level must reduce payments to that level. Payment at the 75th percentile means that 75 per cent of the charges in a given geographical area for a given service would be reimbursed in full, if the charge did not exceed the physician's customary charge. Charges, as used here, include all customary charges a physician makes for services, including those charges reimbursed by title XVIII and third party carriers.

After July 1, 1970, States' requests to increase fees paid to physicians will be approved if two conditions are met: if a State wants to increase fees above the base of the January 1969 75th percentile of customary charges, the percentage increase above that base may not exceed the percentage increase in the all-services component of the Consumer Price Index (adjusted to exclude the medical component) or the increase in an alternate index designated by the Secretary. The State must also have established effective utilization review and quality control systems in cooperation with professional groups.

We realize that full implementation of this policy will require cooperation on the part of the professions involved. We are mindful of your long history of ministering to those who cannot pay for medical care themselves and are therefore certain that we can look forward to your understanding and help.

**Note:** Published above is a letter received from John G. Veneman, Under Secretary of the Department of Health, Education and Welfare, addressed to Robert H. Quinn, M.D., president of the South Dakota State Medical Association, and Dr. Quinn's reply to him.



Your assistance in disseminating this information to your membership would be appreciated. A copy of the regulation is enclosed.

Sincerely,  
John G. Veneman  
Under Secretary

Enclosure

---

John G. Veneman, Under Secretary  
Department of Health, Education and Welfare  
Social and Rehabilitation Service  
Washington, D. C. 20201

Dear Mr. Secretary:

As President of the South Dakota Medical Association, I plan to publish your letter addressed to me dated July 1, 1969, in the South Dakota Journal of Medicine so that your feelings and the feelings of the department of HEW may be disseminated throughout our State of South Dakota in regards to the Title XIX of Social Security Act: Reasonable Charges.

I also plan to place an editorial in the same issue of the South Dakota Journal of Medicine.

My editorial will consist of the following:

In this issue of the Journal, a letter addressed to me from the Under Secretary of Health, Education, and Welfare is published. My answer to this letter is hereby being published. Copies are being sent to a congressional delegation and to the Medical Association Presidents of the surrounding states.

We physicians of South Dakota and most of the physicians in the United States spend a great part of our life caring for patients in need, including the indigent, as well as the wealthy. This we will continue to do.

Mr. Secretary, I know that you are new in the Department of HEW and may not have been filled in on all of the proceedings that transpired prior to the enactment of Public Law 89-97.

Several years ago when Medicare - Medicaid - and other forms of government paid medical care were being promoted by our politicians and bureaucrats, we pointed out many salient points to them and to the general public.

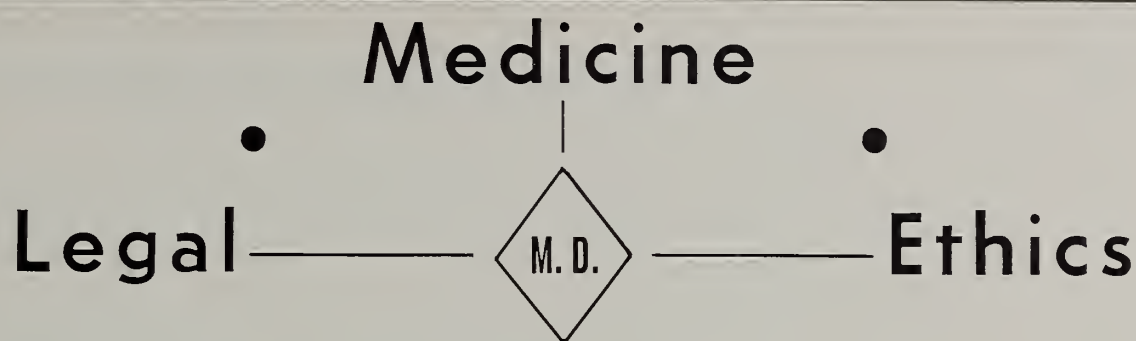
1. We have always cared for indigent people and we have taken in consideration the needs of our "medically indigent people."
2. South Dakota statistically stands up well in the United States and in the world, in regards to health statistics.

3. It was pointed out repeatedly by myself and by our association to the officials of HEW at national meetings that the cost of the programs envisioned were bound to skyrocket. These facts were based on increased utilization of the profession as well as the medical facilities. It was based on the fact that people have human natures. It was based on the fact that HEW was repeatedly told by reputable insurance actuaries that their cost was greatly under estimated. It was based on the fact that medical and paramedical skills, techniques, and discoveries have been multiplying at a fantastic rate offering a higher degree of care to each patient. The cost of new laboratory tests, radiographic examinations and therapy, the chemotherapeutic agents, as well as blood banking facilities, new techniques and atomic isotopes, transplants, grafts and mental therapy were projected in our thinking. Needless to say, the medical profession realized that we were in an inflationary era with the overhead of offices, clinics, and hospitals going up at an alarming rate.

4. It was then and has been repeatedly brought to the attention of HEW, that we practice in a rural area. Mr. Secretary, do you realize, sir, that our good physicians in South Dakota have been making calls on their patients twenty to thirty and even forty miles away, for the charge of **one** house call, without mileage, let alone the cost of their time being away from their busy practice. We wish to have it known that the average practitioner in South Dakota spends eighty hours PER week caring for the ills of their patients.
5. It was brought out then and remains true to this day — that our chief health problem in South Dakota remains with the Indian population. This group is under the direct care of the U. S. Government.
6. It was brought out by the proponents of Title XVIII and Title XIX of public law — that the indigent and near indigent must not be segregated in any form of "charity arrangement," due to the social and psychological stigma attached to it. Now a short two years later your letter contains the following statement, "We are mindful of your long history of administering to those who cannot pay for

(Continued on Page 72)





### RELATION BETWEEN PSYCHIATRISTS AND PSYCHOLOGISTS

The Council considered the relationship of psychiatrists and practicing licensed psychologists and reaffirmed its opinion that the doctor could not delegate to the psychologist any matter requiring the exercise of professional medical judgment.

\* \* \*

### PROFESSIONAL ASSOCIATION LAWS

The Judicial Council considered the so-called "professional association laws" which would permit doctors to form professional associations. It was asked whether or not associations of doctors formed under this law would conform to the American Medical Association's Principles of Medical Ethics.

The Council pointed out that in 1957 the House of Delegates of the Association declared that it is within the realm of ethical propriety for physicians to join together in partnerships, associations, or other lawful groups, provided that the ownership and the management of the affairs thereof remain in the hands of licensed physicians. The Council agreed that in accordance with the policy of the House of Delegates, physicians may take advantage of "professional association laws" and may also ethically do those things which are necessary to reap the intended and proper advantage of such legislation.

\* \* \*

### EXCESSIVE FEE

The charging of an excessive fee is unethical and is contrary to Section 7 of the Principles. The physician's fee should be commensurate with the services rendered and the patient's ability to pay.

\* \* \*

### ITEMIZED BILL

Nothing in the Principles of Medical Ethics proscribes the submission of an itemized bill by a physician to his own patient for medical service he actually rendered to the patient.

\* \* \*

### PHYSICIAN LIABLE FOR MAMMOPLASTY WITHOUT INFORMED CONSENT

A Florida trial court jury awarded damages of \$13,000 to a patient in her suit against a physician for having performed a mammoplasty on her without informing her that the size of her breasts would be reduced as a result of the operation. The patient testified that her breast line was reduced from size 42 to size 38 by the operation and that this change in her figure caused her to lose her fiancé. The patient testified that the physician made no mention that the size of her breasts would be reduced when she discussed the operation with him. The physician testified that he had informed the patient that the size of her breasts would be reduced by the operation.

\* \* \*

### ACCUSED ACQUITTED IN LSD MURDER

A former medical student charged with murder was found by a New York trial court jury to be not guilty by reason of insanity. The accused contended that he had been "flying" on LSD for three days before the killing and was "in a state of amnesia" from the continued use of LSD and tranquilizers at the time of the killing. The prosecution contended that the accused was sane and was using the LSD "trip" story to get away with the perfect crime. The court ordered him committed to a mental hospital.

(Continued on Page 72)



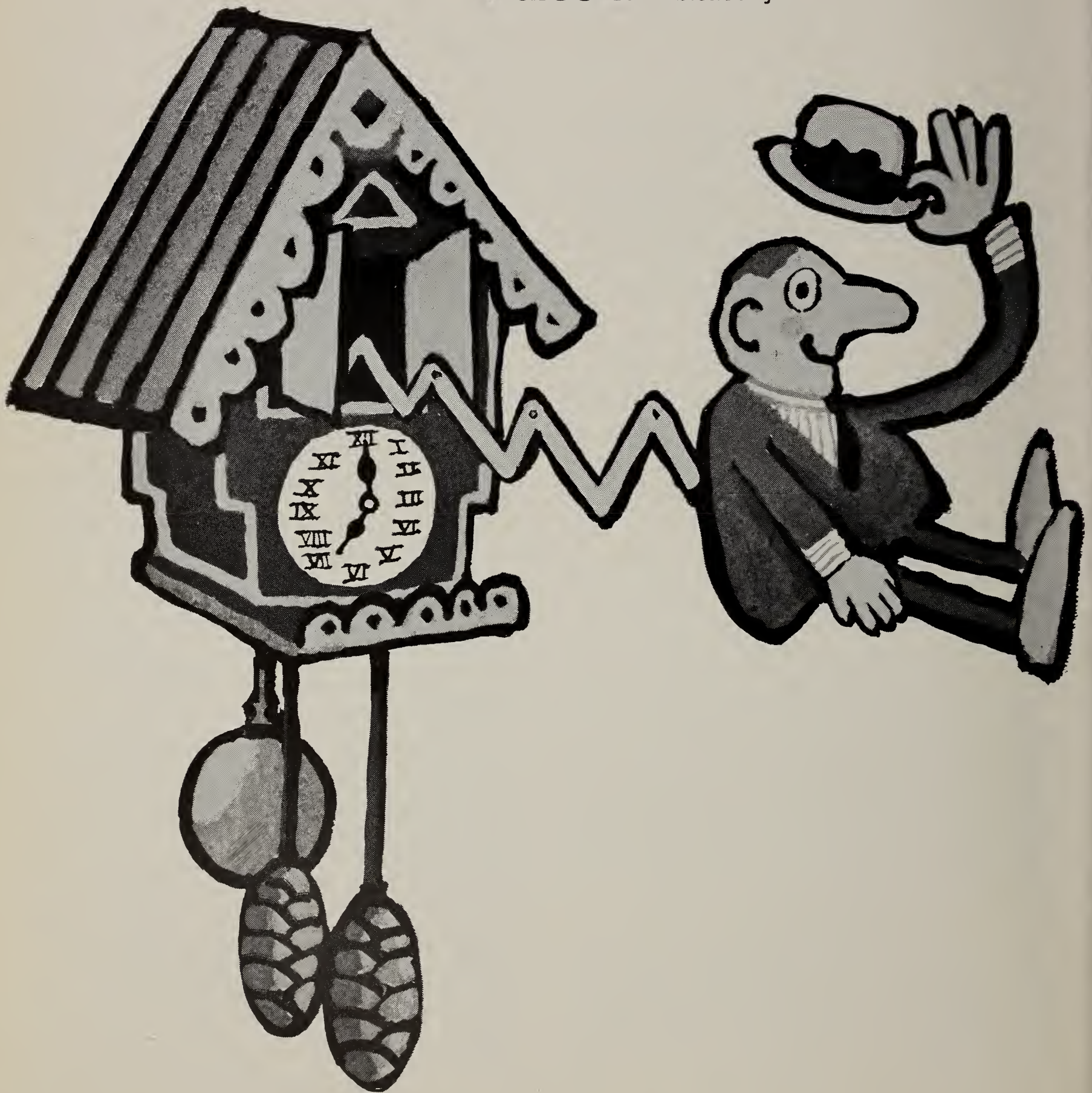
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# Path C A P sule

Submitted by the College of American Pathology in connection with the South Dakota Society of Pathologists.

## IMMUNOGLOBULINS

The term immunoglobulins refers to a group of antigenically related proteins having antibody activity and which migrate electrophoretically in the gamma and beta globulin regions. During the past few years there has been a phenomenal increase in the understanding of the role of these proteins, and immunoelectrophoretic analysis has acquired diagnostic usefulness in categorizing clinical disorders associated with malfunction of the immune mechanism.

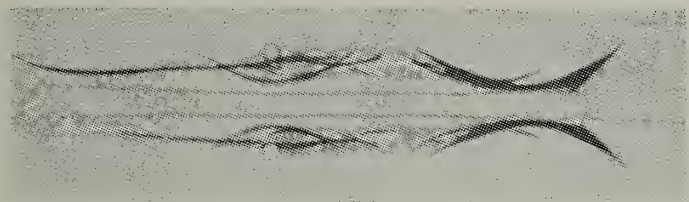


Fig. 1 — Normal Immunoelectrophoretic Pattern.

Based upon their chemical structure and function, the serum immunoglobulins are classified as gamma G (IgG), gamma A (IgA) and gamma M (IgM). A fourth group, gamma D (IgD), has been recently recognized but its function is not fully understood.

IgG constitutes approximately 75% of the serum immunoglobulins with a normal level of 500 - 1200 mg/100 ml. in adults. This fraction contains the majority of anti-bacterial, antiviral, antinuclear factors and antitoxic antibodies. IgG crosses the placenta and is responsible for the passive immunity of the newborn.

IgA has a normal serum level of 50 - 150 mg/100 ml. for adults and accounts for approximately 20% of the immunoglobulins. This group has a variety of functions and includes some of the antibacterial antibodies, skin sensitizing antibodies, cold agglutinins and antinuclear factors. IgA does not cross the placental barrier.

IgM has a normal serum level of 50 - 100 mg/100 ml. for adults and accounts for about 5% of the immunoglobulins. This fraction contains

TABLE 1

Disease	Serum Immunoglobulin Concentration		
	IgG	IgA	IgM
Multiple myeloma			
G myeloma	+	—	—
A myeloma	—	+	—
Bence Jones myeloma	N	N	N
Waldenstrom's macroglobulinemia	—	—	+
Congenital agammaglobulinemia	—	—	—
Laennec's cirrhosis	+ or —	+	+
Biliary cirrhosis	N	N	+
Infectious hepatitis	+	N or +	N or +
Lupus erythematosus	+	N or +	N or +
Rheumatoid arthritis	N or +	N or +	+
Chronic infections	+	N or +	N or +
Infectious mononucleosis	+	N or +	+
Sarcoidosis	N or +	N or +	N or +
Cystic fibrosis	+	+	N or +
Hodgkins disease	— or +	N or +	— or +
Monocytic leukemia	+	+	+
Chronic lymphocytic leukemia	—	—	—
Chronic myelocytic leukemia	N	—	N

Comment: N = Normal + = increase — = decrease

most of the "natural" antibodies, the heterophile antibodies of infectious mononucleosis, the ABO blood group isoantibodies, the rheumatoid factor, antinuclear factors, cold agglutinins and Rh antibodies. Like IgA it does not cross the placenta. (Those Rh antibodies crossing the placenta are thought to be of the IgG type.)

Immunoelectrophoresis combines the advantages of electrophoresis with specific immunological reactions of serum proteins to an antiserum in a translucent agar gel medium. This laboratory test, when correlated with other laboratory and clinical data, is helpful in the differential diagnosis of diseases associated with abnormal development and function of the cells of the immune system (eg, multiple myeloma) from diseases in which there is abnormal immunoglobulin metabolism (eg, rheumatoid arthritis). In both examples cited above without immunoelectrophoresis the diagnosis is sometimes equivocal since both may exhibit variable degree of plasmacytosis in the bone marrow and hypergammaglobulinemia. Such disputed diagnosis can often be resolved with immunoelectrophoresis.

If the change in the immunoglobulin concentration is diffuse, ie, all fractions elevated or decreased the abnormality is classified as poly-



clonal. If only a single fraction is involved it is said to be monoclonal. Included in the polyclonal gammopathies are the collagen diseases, tuberculosis and other chronic infections, liver disease, congenital agammaglobulinemia and some of the lymphoproliferative disorders (leukemias and lymphomas). The monoclonal gammopathies include the various forms of multiple myeloma and Waldenstrom's macroglobulinemia.

In addition to the above mentioned broad categorization of diseases, diagnosis of specific disease can often be resolved by immunoelectrophoresis, eg, myeloma vs. macroglobulinemia of Waldenstrom. Listed below are some conditions in which changes in the serum immunoglobulin concentration occur.

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3. Fahey, J. L., "Antibodies and Immunoglobulins," J.A.M.A., 194: Nos. 1 & 3, Oct. 4 & 18, 1965.
4. Miller, S. E., Editor, "A Textbook of Clinical Pathology," 7th Edition, Williams & Wilkins, Baltimore, 1966.

(Continued from Page 56)

medical care themselves and are therefore certain that we can look forward to your understanding and help."

7. The physicians of South Dakota have tried diligently to police our own as can be witnessed by HEW records.
8. Yes, Mr. Secretary, we have tried to comply with a law which to us has good points but incorporates many bad points. We were not given our democratic opportunity to appear before house or senate hearings in regards to Title XIX. However, the legislators and politicians knew our doubts and our worries. Your letter comes sooner than our time table said it would, it has come in a short two years after the enactment of the Medicaid Law.

Yes, Mr. Secretary, the medical profession will continue to care for its indigent with or without government aid—as all knew we would. I do hope that the U. S. Government can count on the defense industry — the government workers — the industries that serve our nation as purveyors of commodities — the labor force

in the U. S. and the elected and appointed officials, to follow in our footsteps, and state that they too are willing to be frozen at 1969, seventy-five percentile incomes.

Probably congress would wish to vote their forty-five per cent increase out and go to seventy-five percent of early 1969.

It is to be remembered that Title XIX patients are the most expensive patients to be seen in our offices and hospitals. The average physician runs his office with an overhead of close to fifty per cent. It is estimated that the Medicaid patients cause an overhead of approximately seventy per cent. I need not point out the reasoning for this latter statement to you, sir.

Since the federal government in its benevolent action has taken over doing the work of charity, the physician and his patient have lost a certain rapport that was dear to us all. A certain great feeling has been destroyed.

Robert H. Quinn, M.D., President  
South Dakota State Medical Association

(Continued from Page 67)

#### CHIROPRACTOR CONVICTED OF MURDER IN CANCER PATIENT'S DEATH

A California trial court jury convicted a chiropractor of second degree murder in connection with the death of an 8-year-old girl who was suffering from cancer of the left eye. The chiropractor had treated the child for 21 days by administering vitamins and diet supplements. He allegedly told the child's parents that the treatment would cure the cancer. He charged the parents in excess of \$700 for the treatments. The chiropractor's prior conviction for second degree murder was reversed because of erroneous instructions on the felony murder doctrine and the possibility of a manslaughter finding.

\* \* \*

Information provided by the Law Department,  
AMA, 535 N. Dearborn St., Chicago, Ill.

THE AMERICAN COLLEGE OF PHYSICIANS  
SOUTH DAKOTA MEETING  
AND  
THE SOUTH DAKOTA SOCIETY OF  
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UNIVERSITY OF SOUTH DAKOTA  
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# MEDICAL ASSOCIATION

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News Notes • Changes • Births • News

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## Pop's Proverb

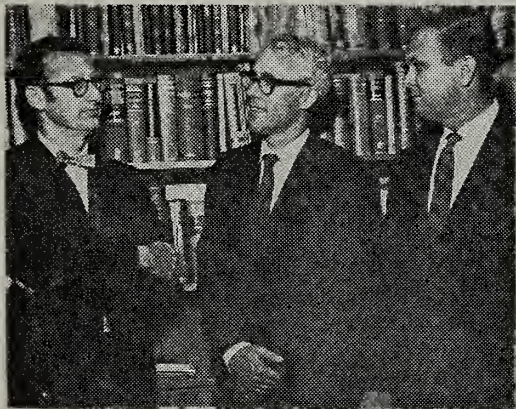
When a problem gets too big, consult a specialist in that field.

**Franklin Pratt, M.D.**, Yankton, has joined **James P. Steele, M.D.** in the practice of radiology.

\* \* \*

The Lennox Branch of the Donahoe Clinic announced the association of **Arthur A. Lampert, Jr., M.D.**

\* \* \*



When Governor Frank Farrar visited the University of South Dakota School of Medicine he was escorted on a tour of the new addition to the Medical School building by Dean George W. Knabe, left, and Dr. Henry M. Parish, right, who assumed his duties as associate dean of the School of Medicine and professor of community medicine on July 1.

**James A. Rud, M.D.**, Watertown, has joined **A. R. Heupel, M.D.** in the practice of pathology.

\* \* \*

**Karl H. Wegner, M.D.**, and **Robert Hayes, M.D.**, Vermillion, spoke at a Health Planning Seminar held in Sioux Falls.

\* \* \*

Governor Farrar recently appointed **Roscoe Dean, M.D.**, Wessington Springs, to a four year term on the South Dakota Hospital and Medical Facilities Advisory Council.

A special seminar at the State University in Brookings to assist licensed practical nurses included a panel discussion on "Psychological Reaction to Disaster" of which **Bruce Lushbough, M.D.**, Brookings, was a member. **Robert Hayes, M.D.**, Vermillion, presented a film and discussion on "Emergency Childbirth."

**Frank J. Abts, M.D.**, Yankton, died July 17, 1969, at his home at the age of 69. Dr. Abts was licensed in South Dakota in 1926 and had practiced in Yankton since that time. He was a member of the American College of Surgeons, the American Medical Association, the South Dakota State Medical Association, the Yankton District Medical Society and the Knights of Columbus. Survivors include two sons; James, Hopkins, Minnesota and Richard, Boston, Massachusetts, and a daughter, Virginia, San Francisco, California.

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**Contraindications:** Hyperexcitability, undue restlessness, hyperthyroidism, porphyria; in patients on MAO inhibitors.

**Precautions:** Use with caution in patients hypersensitive to sympathomimetics or barbiturates and in coronary or cardiovascular disease or severe hypertension. Excessive use of the amphetamines by unstable individuals may result in a psychological dependence. Rarely, symptoms of toxic psychosis (hallucinations, confusion, panic states, etc.) may occur with amphetamines, usually after prolonged high dosage. In these instances, withdraw the medication. Use cautiously in pregnant patients, especially in the first trimester.

**Adverse Reactions:** Overstimulation, restlessness, insomnia, g.i. disturbances, diarrhea, palpitation, tachycardia, elevated blood pressure, tremor, sweating, impotence and headache.

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BY THE S. DAK. STATE MEDICAL ASSN.

OF

## MEDICINE

OCTOBER • 1969



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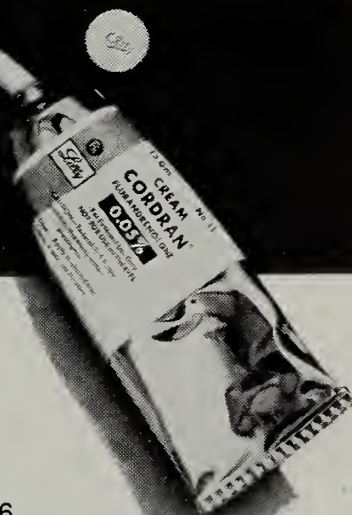
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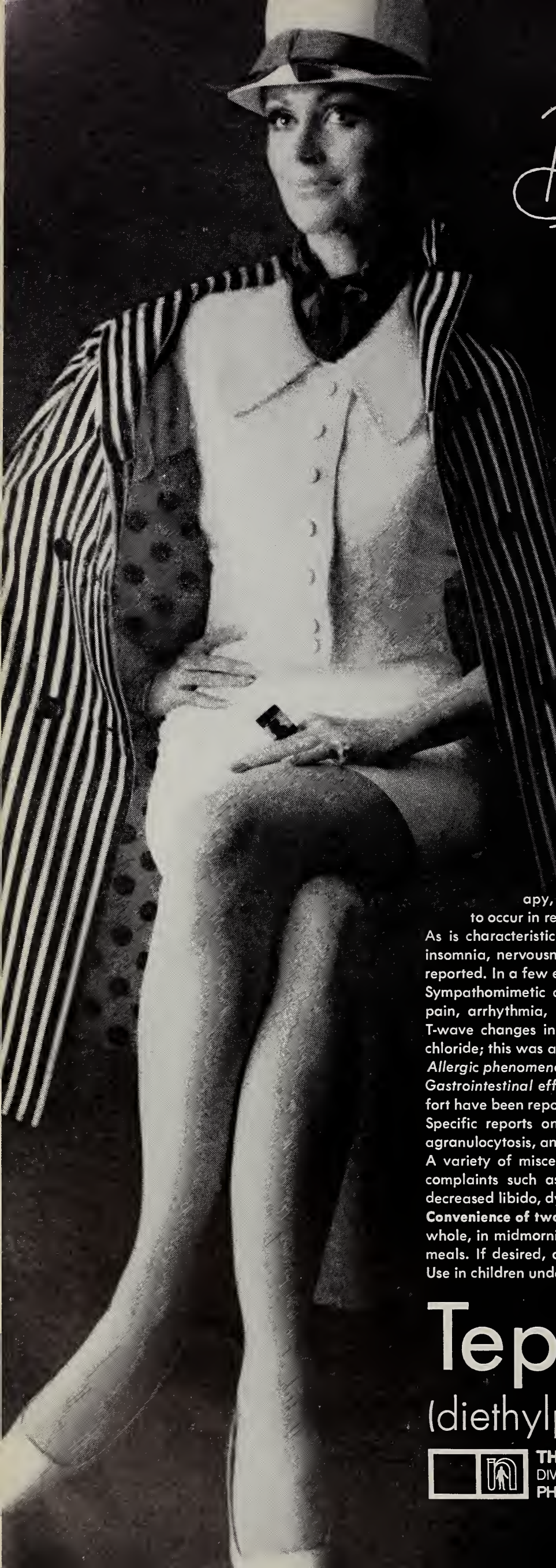
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**Contraindications:** Concurrently with MAO inhibitors, in patients hypersensitive to this drug; in emotionally unstable patients susceptible to drug abuse.

**Warning:** Although generally safer than the amphetamines, use with great caution in patients with severe hypertension or severe cardiovascular disease. Do not use during first trimester of pregnancy unless potential benefits outweigh potential risks.

**Adverse Reactions:** Rarely severe enough to require discontinuation of therapy, unpleasant symptoms with diethylpropion hydrochloride have been reported to occur in relatively low incidence.

As is characteristic of sympathomimetic agents, it may occasionally cause CNS effects such as insomnia, nervousness, dizziness, anxiety, and jitteriness. In contrast, CNS depression has been reported. In a few epileptics an increase in convulsive episodes has been reported.

Sympathomimetic cardiovascular effects reported include ones such as tachycardia, precordial pain, arrhythmia, palpitation, and increased blood pressure. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride; this was an isolated experience, which has not been reported by others.

Allergic phenomena reported include such conditions as rash, urticaria, ecchymosis, and erythema. Gastrointestinal effects such as diarrhea, constipation, nausea, vomiting, and abdominal discomfort have been reported.

Specific reports on the hematopoietic system include two each of bone marrow depression, agranulocytosis, and leukopenia.

A variety of miscellaneous adverse reactions have been reported by physicians. These include complaints such as dry mouth, headache, dyspnea, menstrual upset, hair loss, muscle pain, decreased libido, dysuria, and polyuria.

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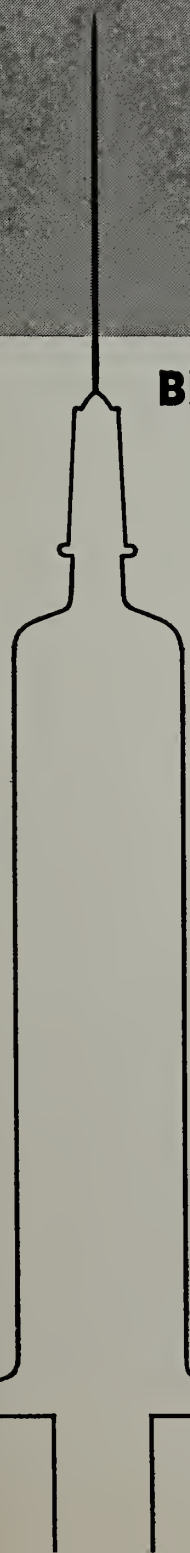
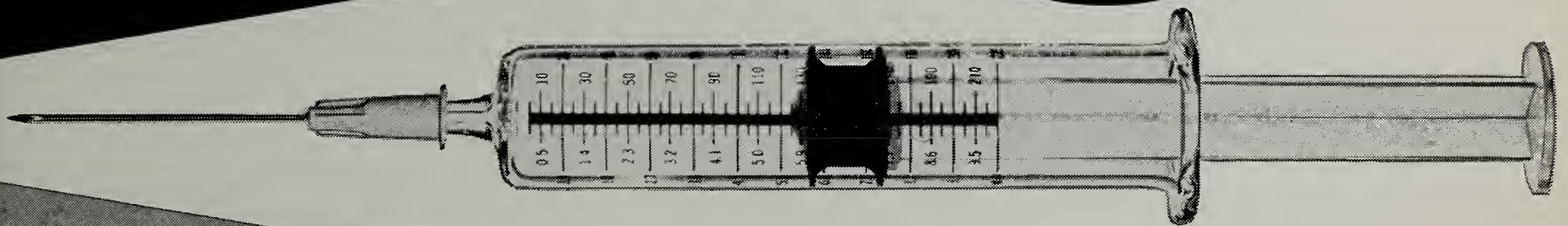


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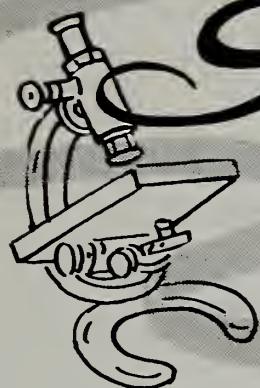
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# Scientific

# PAPER

## CENTRAL VENOUS PRESSURE MONITORING BY PERCUTANEOUS INFRACLAVICULAR SUBCLAVIAN VEIN CATHETERIZATION

David F. Piro, M.D., F.A.C.S.  
Bartron Clinic  
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The clinical importance of the central venous pressure is gaining increased attention from surgeons in this country. Constant monitoring during the surgical procedure is becoming a necessity in all poor risk patients and in any patient undergoing major surgery where fluid and blood replacement must be carefully controlled.

Central venous pressure measurements as a routine procedure originated with cardiopulmonary bypass procedures. It was found to be a more accurate means of restoring blood volume than balance measurements of blood loss. It was first described by Hughes and Magovern<sup>1</sup> after thoracotomy and by Wilson<sup>2</sup> and his group. MacLean<sup>3</sup> found it to be the most sensitive index to blood volume requirements and especially to continuing blood loss. Rosoff et al<sup>4</sup> however, found that central venous pressure measurements did not correlate with simultaneous determinations of blood volume in patients with hemorrhage. This emphasizes that the central venous pressure reflects the competence of the right ventricle to accept the circulating blood volume rather than a measurement of the blood volume itself. Spencer<sup>5</sup> also found experimentally while working with dogs who were overtransfused that the right atrial pressure lagged behind pulmonary artery pressure and recommended caution in the interpretation of central venous pressure changes.

Borow<sup>6</sup> in his clinical experience with more than 300 patients observed that there were four instances where the central venous pressure could be misinterpreted if the patient was not properly evaluated. He found that the central venous pressure may be normal or increased in the hypovolemic patient with poor coronary artery perfusion. His patient did not improve until given increased amounts of fluid to improve tissue perfusion and cardiac performance. In another elderly woman, it was demonstrated that a patient may be over hydrated in the presence of a low or normal central venous pressure. This again emphasizes the point that the central venous pressure reflects only the function of the right ventricle with no correlation to blood volume. Therefore, to avoid misinterpretation of the readings he advocates the fairly rapid infusion of an electrolyte solution. The central venous pressure is then measured after every 100 cc. of fluid administered. If after 500 cc. of fluid has been given rapidly and the central venous pressure does not increase more than 5 cm. of water and returns to within 2 or 3 cm. after a delay of fifteen minutes it may be assumed that the heart has tolerated the increase well and that the patient probably requires more fluid. If, however, the central venous pressure increases and remains elevated this is an indication that the heart cannot tolerate an in-



creased fluid load and fluids should be given cautiously.

Normal central venous pressure has been variously reported as ranging from 2 to 12 cm. of water with levels greater than 15 cm. of water indicating a possible early circulatory overload.

There are a number of different methods of introducing a catheter into the superior vena cava or right atrium. It may be introduced percutaneously into the external jugular, basilic, cephalic or subclavian veins. Surgical cutdowns may be used to intubate the first three. I prefer the percutaneous infraclavicular approach to the subclavian vein. The tip of the catheter should be placed within the thorax. Inferior vena cava intubation has been found to not accurately reflect right atrial pressure. It may be used for 1. central venous pressure monitoring 2. fluid administration 3. blood sampling and 4. blood withdrawal in cardiac failure.

### INDICATIONS

It has been recommended that a central venous pressure catheter be used whenever the patient fails to respond to what is believed to be adequate replacement of blood volume. I formerly adhered to this precept but with increasing experience and a sparsity of complications I have extended the scope of subclavian catheterization. I now use it routinely for all major abdominal, thoracic and vascular surgical procedures to allow for monitoring of the central venous pressure during and after the operation and for intravenous fluid administration post-operatively. It also has been of great help in medical or pediatric patients requiring long term intravenous therapy whose peripheral veins are poor and who otherwise would require an operative venous cutdown. In these patients this alleviates the physical and psychic trauma of frequent unsuccessful attempts to restart infiltrated intravenous injections. The catheter also allows for easy ambulation of the patient without danger of infiltration and avoids prolonged inactivity in bed with an arm strapped to a board.

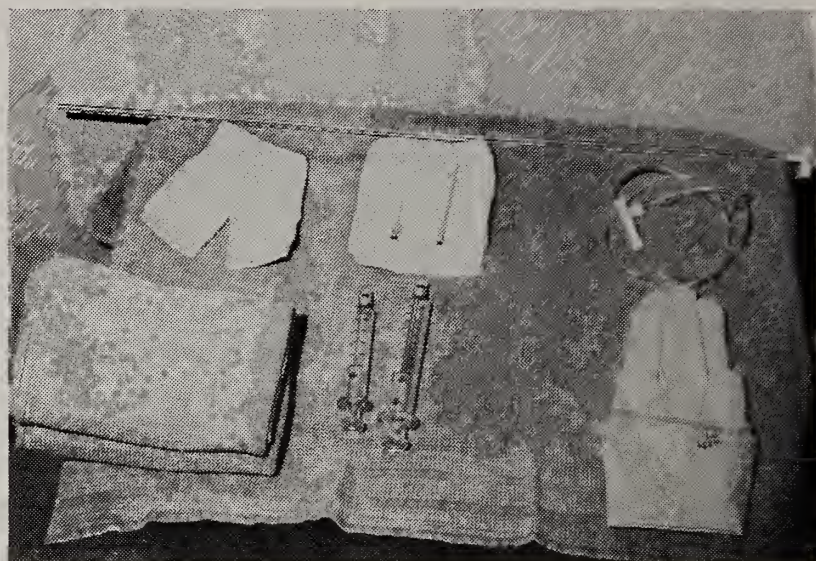
Perhaps its greatest advantage is in the hypovolemic patient whose peripheral veins are completely collapsed and immediate intravenous fluid administration is imperative. Within a few minutes the subclavian veins can be catheterized and rapid fluid replacement begun.

### TECHNIQUE

A detailed description of the technique for insertion of an infraclavicular subclavian catheter is as follows: Required are 1. a 13 gauge short bevel needle 2. a 10 inch 16 gauge polyethylene

catheter 3. a blunt 18 gauge needle 4. a 10 cc. syringe 5. a disposable plastic venous monometer 6. a 30 inch plastic intravenous tubing and 7. a pair of sterile gloves. The materials are pictured in Figure 1.

Figure 1.



Materials used in Subclavian Vein Catheterization.

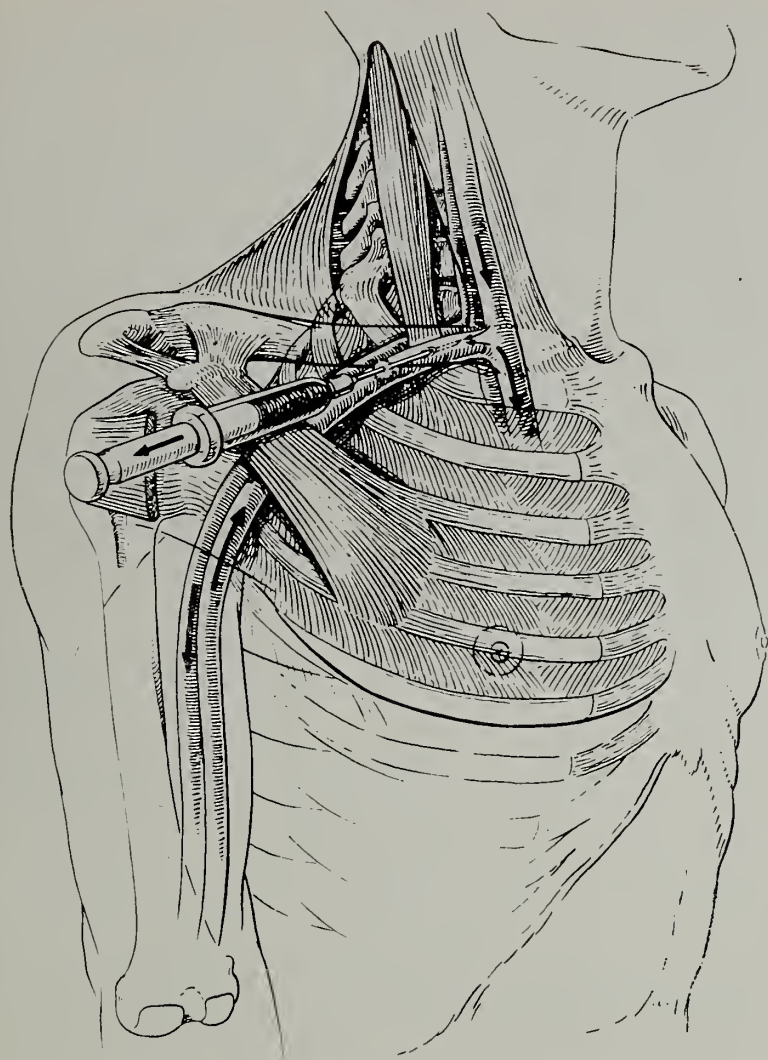
The patient is placed in the supine position with the head turned toward the opposite side. The neck, shoulders and upper thorax are prepared with Betadine solution and the area draped with sterile towels. At the most medial point which can be palpated between the first rib and the clavicle a skin wheal is raised with a local anesthetic and the underlying areas infiltrated. The 13 gauge needle is attached to the 10 cc. syringe and with the bevel of the needle directed downward is advanced slowly under the clavicle.

The needle must be kept above the first rib and against the underside of the clavicle to avoid puncturing the underlying pleura. Moderate negative pressure is maintained on the syringe plunger as the needle is advanced. (Figure 2). If the vein is entered an immediate rush of blood will be noted. The syringe is then disconnected from the needle and the 16 gauge polyethylene catheter is then threaded through the needle into the subclavian vein and advanced into the right atrium. If the catheter fails to advance easily the needle hub should be twisted but no attempt should be made to pull the catheter back and reinsert it. This action could result in shearing off the catheter against the sharp needle bevel with subsequent catheter embolus into the right heart and beyond.

Once the catheter is in the desired position the needle is backed off over the catheter and the end of the catheter attached to the 18 gauge blunt needle. An intravenous tubing is attached to the needle and fluid allowed to flow freely.



Figure 2.



Manner of introducing needle for Subclavian Vein Catheterization.

If the catheter is within the vein rapid flow will ensue. To insure that the catheter is in the vein and has not inadvertently punctured the pleura the intravenous bottle is lowered below the level of the heart. An immediate return of blood through the catheter indicates proper position. Without this precaution it is possible to have entered the pleural cavity and massive hydrothorax develop before this complication is detected.

The catheter is then well anchored in position by spraying the area with a liquid adhesive and applying 2 inch tape over the catheter to the skin.

Central venous pressure can be monitored by attaching a 30 inch venotube to the 18 gauge needle and to one limb of a 3 way stopcock. The intravenous tubing from the intravenous bottle is attached to another limb and the plastic venous monometer to the vertical limb. The zero point of the monometer is taken as the mid axillary line which corresponds to the right atrium. Rhythmic fluctuation of the water column corresponds to the phases of respiration and confirms the intrathoracic location of the catheter. If there is any doubt as to the position of the radiopaque catheter a chest x-ray should be taken. (Figure 3.)

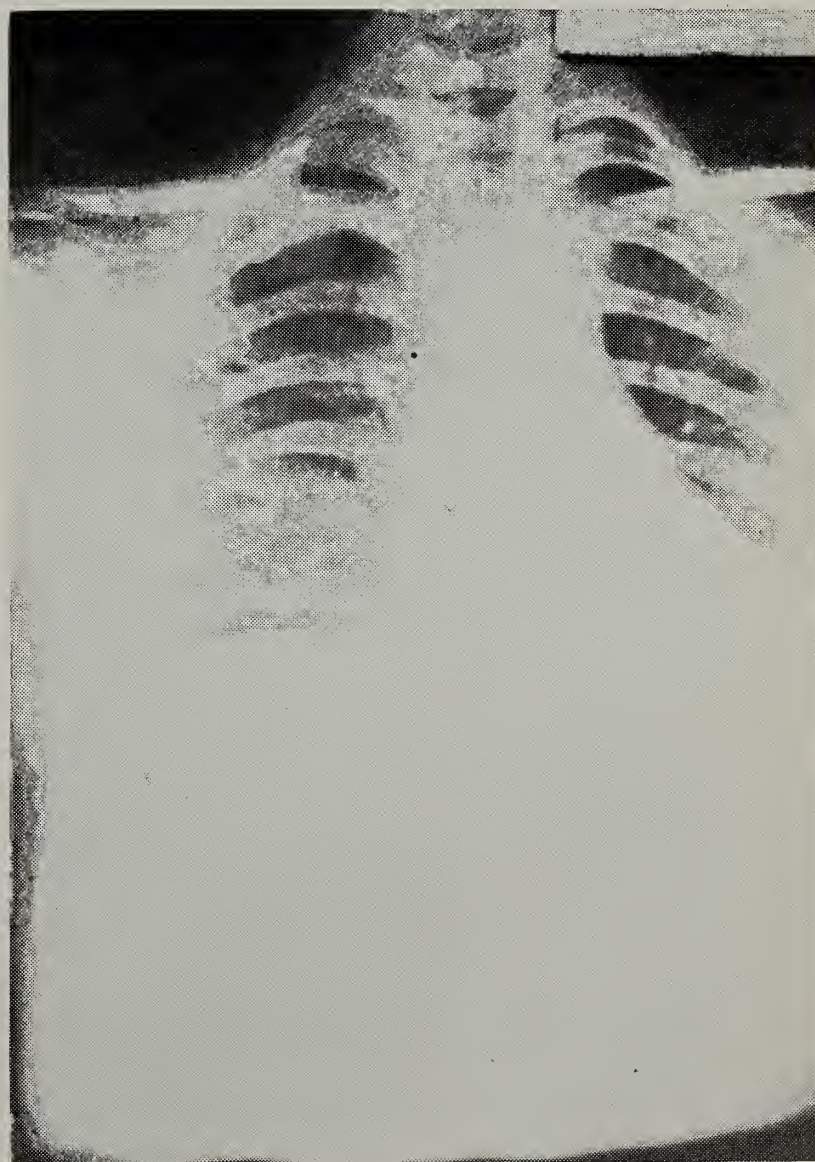
## CLINICAL MATERIAL

By this technique, 180 subclavian catheters have been inserted in 172 patients during the past two years. The age range has varied from 6 to 89 years with an average age of 60 years.

## COMPLICATIONS

I have noted only one complication as a result of subclavian catheterization and this was a minor pneumothorax which rapidly responded to needle aspiration. Hardaway<sup>5</sup> reporting on the routine use of the supraclavicular subclavian catheter in more than 400 Vietnam War casualties noted only two minor pneumothoraces and no other complications. Borow<sup>6</sup> after experiencing two pneumothoraces in 52 subclavian catheterizations abandoned the procedure for percutaneous external jugular vein catheterization or peripheral cutdowns on the cephalic or basilic veins. These procedures, however, were complicated by two cases of thrombophlebitis. Collins<sup>7</sup> reporting on 213 peripheral venous cut-downs noted an incidence of 34.5% local infections (17.4% with pathogens and 16.9% with contaminants) as indicated by catheter tip cultures. Phlebitis occurred in 39% and bacteremia

Figure 3.



Chest X-ray illustrating position of catheter within the right atrium.



in 1.9% with two deaths. The risk of infection and bacteremia they felt was directly related to duration of catheterization.

My experience with percutaneous subclavian catheterization indicates a lesser degree of complication. I have routinely cultured the catheter tip and found them to be positive for bacteria in 9% (5% pathogens and 4% contaminants). In no case however, has there been any evidence of phlebitis or bacteremia. The absence of these complications may be due to either of two mechanisms (a) the subclavian vein is deep seated and cannot be inspected or (b) blood flow in large veins is so rapid, clotting does not occur at the tip.

Duration of catheterization was not a factor in causing complications. The average length of catheterization in these 180 cases was 5 days, varying from a few hours to 25 days. In three patients where the catheter remained longer than 20 days, culture of the tip was negative and there were no clots adherent to the catheter or within its lumen.

Phillips<sup>9</sup> adds 1000 U.S.P. units and Borow 2000 U.S.P. units of Heparin to each 1000 cc. of intravenous fluid to prevent clotting in the catheter. Borow began this regime after encountering a case of fatal pulmonary embolism where no source for the embolism could be found at post mortem examination. I feel this is a very worthwhile adjunctive measure and have myself recently started using 2000 U.S.P. units of Heparin in each 1000 cc. of intravenous fluid.

Other reported complications have been perforation of the subclavian vein and cardiac arrhythmias secondary to impingement of the catheter in the right ventricle.

### SUMMARY

Percutaneous infraclavicular subclavian vein catheterization is a relatively simple, quick, safe and painless procedure. It allows continuous monitoring of the central venous pressure during and after surgery and is a means of administering postoperative intravenous fluids and obtaining blood samples. In addition it facilitates ambulation of the patient without fear of intravenous infiltration, thereby reducing the nursing care.

Complications are rare with only one minor pneumothorax in 180 subclavian catheterizations being observed.

The author wishes to express his appreciation to Dr. Steven J. Phillips for his kind permission in reprinting the illustration in Figure 2.

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# Scientific P A P E R

## IMPORTANCE OF THE FIRST HEART SOUND IN CARDIAC DIAGNOSIS

Robert C. Little, M.D.\*

The complicated procedures that are currently available for the diagnosis of cardiac abnormalities sometimes obscure the importance of the simpler clinical tools. The cardiologist of a century ago relied on his stethoscope and frequently based his diagnosis largely on the meticulous use of this instrument. Today the electrocardiogram, the x-ray examination and, in some cases, the catheterization laboratory and other sophisticated procedures are important parts of a cardiac examination; however, much useful information can still be obtained from careful auscultation of the heart.

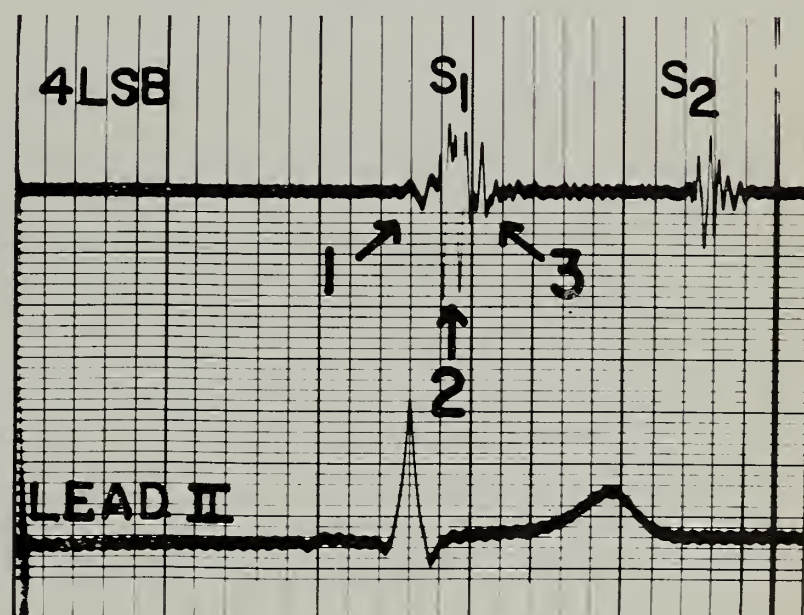
The cardiac sounds undergo characteristic alterations in disease states and attention to them can yield helpful diagnostic information. The importance of careful scrutiny of the second heart sound has recently been emphasized.<sup>1</sup> It is our purpose here to briefly review the physiological forces responsible for the first heart sound and to call attention to some of the implications of changes in its character, timing, and intensity. These clinical features are summarized in Table 1.

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Figure 1.



Phonocardiogram taken from the fourth intercostal space to the left of the sternum labeled to show the three phases of the first sound: (1) initial muscular components, (2) valvular component, and (3) ejection component. Lead II of the ECG is included.

### Cause of the First Sound

The first heart sound can usually be divided into three components. These subdivisions are identified on the phonocardiogram shown in Figure 1. The first component is made up of a few low frequency vibrations which are usually at or near the limit of audibility. These sounds are thought to be primarily muscular in origin and to result from vibrations generated within the myocardium by the beginning of cardiac contraction. The second component is much



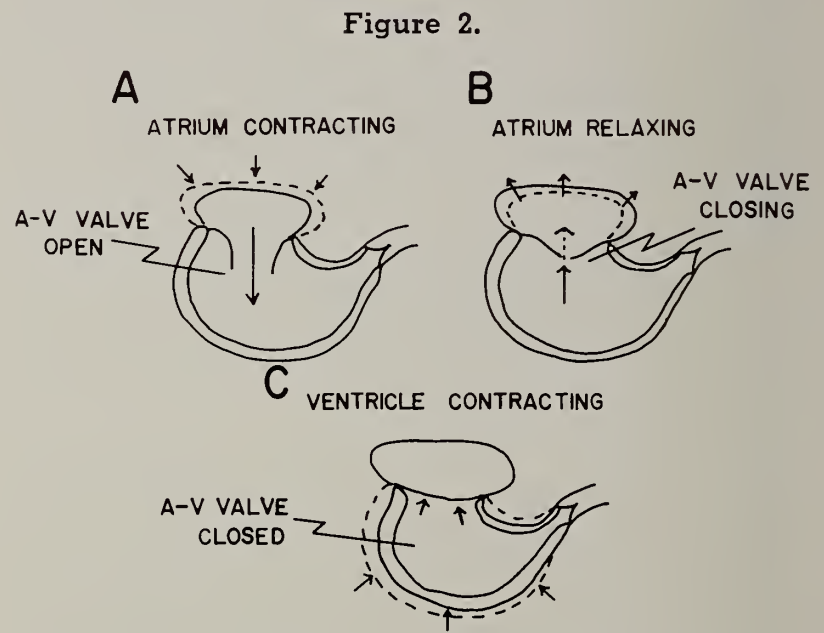
Table 1. The First Heart Sound in Disease States

Splitting			
No Split	Close Split		Wide Split
Normal finding. (may occur in mitral stenosis and L. B. B. B.)	Normal finding.		R. B. B. B. Atrial septal defect with right ventric- ular failure. (may occur in tricuspid stenosis)
Intensity			
Soft	Variable	Loud	Loud and Snapping
1° AV block. Primary myocardial disease. L. B. B. B.	3° AV block. Atrial fibrillation.	P. V. C. Fever. Excitement. Thyrotoxicosis. Atrial septal defect. Systemic hypertension. Tricuspid stenosis.	Mitral stenosis.

louder and is associated with the events that cause the closure of the mitral and tricuspid valves. This is the part of the first heart sound that is usually perceived clinically. It will be discussed in more detail below. The terminal or third portion consists of a series of low intensity vibrations which are associated with the opening of the aortic and pulmonary valves and the beginning of ventricular ejection. Normally these vibrations are near the limit of audibility; however, this part of the first sound may become accentuated in the presence of a dilated pulmonary artery or aorta and become quite loud. When this occurs, the terminal component of the first heart sound may be heard as a separate sound and is called an ejection sound.

The explanation for the second or valvular part of the first heart sound remains somewhat speculative. It appears clear, however, that the mechanism of closure of the atrioventricular valves is important in the genesis of this component. Under normal conditions, the forces produced by atrial contraction operate to swing the mitral and tricuspid leaflets toward closure during the immediate presystolic interval before the onset of ventricular contraction.<sup>2</sup> This occurs because the small increase in ventricular pressure that results from atrial contraction is sufficient to slow and sometimes reverse the flow of blood into the ventricle during atrial relaxation. This causes the open valve cusps to move toward the atrioventricular ring. This mechanism is shown diagrammatically in sections A and B of Figure 2. Final closure of the valve cusps is produced by the sudden increase in ventricular pressure produced at the onset of

ventricular contraction and the tendency of blood to flow back through the open valve into the atria. Because of the presystolic positioning of the valves, the amount of regurgitation with closure is quite small. This procedure is illustrated in section C of Figure 2.



Diagrammatic representation of the effect of atrial contraction (A) atrial relaxation, (B) and ventricular contraction, (C) on closure of the atrioventricular valves. See text for further discussion.

The mechanism of valve closure just described is important to our understanding of the first heart sound because when the valves snap shut there is a sudden deceleration of the column of blood that is attempting to regurgitate back into the atria. This apparently liberates forces that set the valve cusps, the chorda tendineae and other tissues of the heart into vibration. These vibrations, along with those produced by the actual closing of the valve itself, summate to

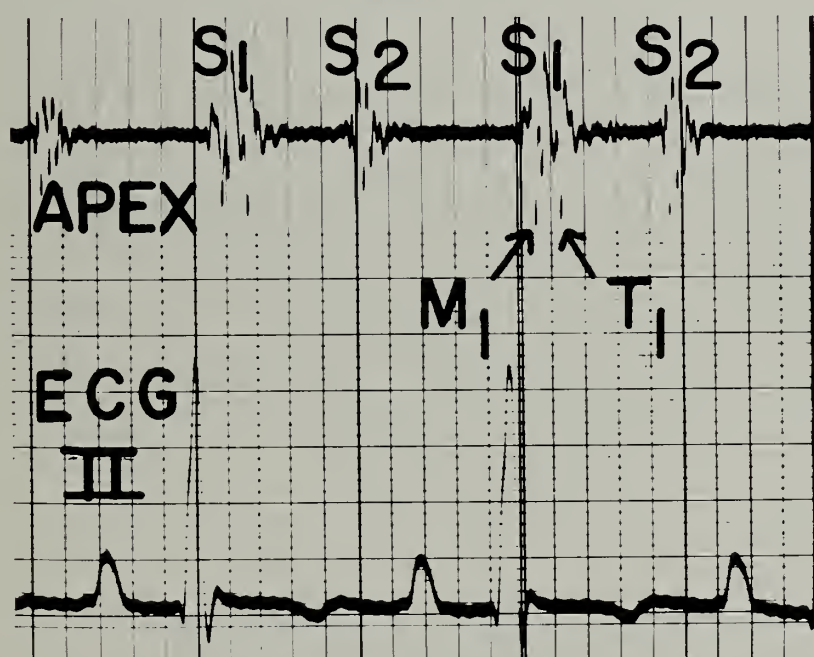


cause the loud, valvular portion of the first sound. These vibrations are quickly damped and as a result usually are present for about 0.03 to 0.04 seconds.<sup>2</sup>

### Splitting of the Sound

Under normal conditions, contraction of the left ventricle may slightly precede that of the right ventricle. In addition, the vigorous left ventricular contraction causes the pressure rise within that ventricle to be more abrupt than it is on the right side of the heart. As a result, closure of the mitral valve frequently occurs slightly before closure of the tricuspid valve. This causes the major (valvular) part of the first heart sound to become separated or split. This type of splitting normally does not exceed 0.03 to 0.04 seconds; however, this is usually sufficient to be detected clinically. An example of this type of splitting of the first sound is shown in Figure 3. A close split of this type is usually considered a normal auscultatory finding and has no particular clinical significance.

Figure 3.



Apex phonocardiogram showing normal splitting of the first sound. Mitral (M) and tricuspid (T) components of the first sound are labeled.

If the split is very close, it is sometimes difficult to separate the two valvular components of the first sound. The mitral component is loudest at the apex of the heart and the softer tricuspid sound is heard best in the fourth inter-space to the left of the sternum. For this reason, splitting can usually be determined clinically by listening in this latter location. Splitting of the first sound is not normally affected by respiration or change in position of the patient. This fact can be helpful in distinguishing a loud atrial sound and a single first sound from a split first

sound. Right atrial sounds are often reduced in intensity during expiration and left atrial sounds tend to be reduced when the patient stands. Unless one listens carefully, a widely split first heart sound may sometimes be confused with a presystolic murmur. An ejection sound and a single first sound can also be confused with a split first sound. Ejection sounds can be recognized by being louder over the base of the heart where the first sound is soft. Pulmonic ejection sounds also tend to be reduced in intensity during inspiration.

Wide splitting of the first heart sound occurs frequently in complete right bundle branch block. In this condition, activation of the right ventricle is delayed due to the interruption of the conduction pathways. As a result, closure of the tricuspid valve occurs later than normal and produces the wide split. With incomplete right bundle branch block splitting of the first sound usually does not occur. In complete left bundle branch block, the first heart sound is rarely, if ever, split and usually is perceived as a soft, slightly delayed sound. This is thought to result from a slower than normal rise in left ventricular pressure. The second heart sound in this condition characteristically shows a reverse or paradoxical split that closes with inspiration. A second condition that sometimes produces a widely split first sound is an atrial septal defect. When this type of splitting occurs, the tricuspid component is frequently accentuated. A split of this kind is particularly apt to occur if some degree of right ventricular failure has occurred. In this circumstance the delay in tricuspid closure results from the increased volume load on the right ventricle and the increase in the ejection time from that side of the heart. The first heart sound in isolated tricuspid stenosis is usually accentuated due to an increase in the intensity of the tricuspid component. This part of the sound may also be delayed slightly due to an elevation in right atrial pressure so that the first heart sound may appear to be split.<sup>3</sup>

### Intensity of the First Sound

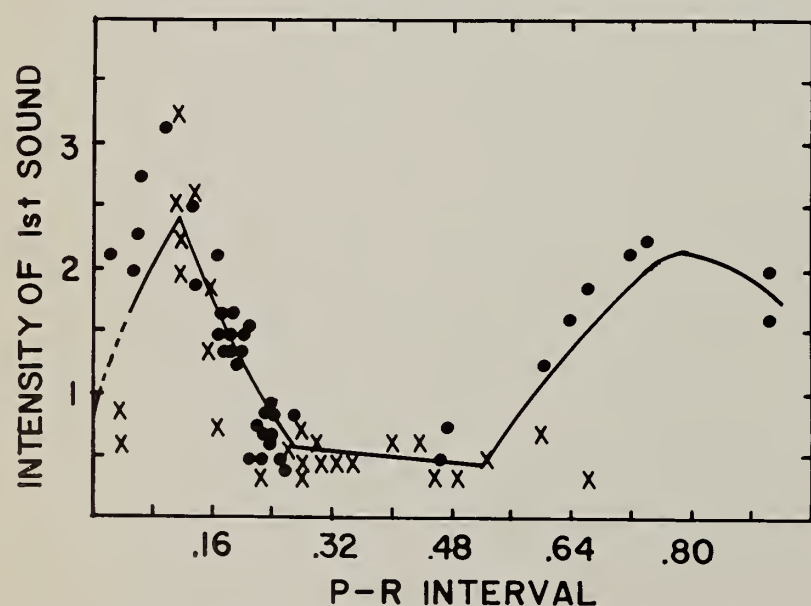
The intensity of the first heart sound is related to the vigor of ventricular contraction and the mechanism of closure of the atrioventricular valves. If the normal positioning of the valve cusps does not occur prior to ventricular contraction, the valves will close from a wide open position with the onset of systole and a loud first sound will result. This type of closure is similar to the slamming of an open door by the wind and is accompanied by an appreciable flow of blood back into the atrium. This mechanism



offers an explanation for the loud first sound that occurs in ventricular premature beats and in such high output states as fever, excitement, thyrotoxicosis, and left-to-right intracardiac shunts. In these latter conditions, appreciable ventricular filling continues throughout diastole and the atrioventricular valve cusps are held in the open position and are not moved toward closure after atrial systole. The increase in ventricular contraction force associated with these conditions also contributes to the loud first sound.<sup>2</sup>

The normal presystolic positioning of the atrioventricular valves requires that the interval between atrial and ventricular contraction be of sufficient duration to permit optimal movement of the valve cusps. If this interval is too short there will not be sufficient time for positioning to occur. If the interval is too long, the valves will tend to reopen under the influence of normal venous return. In either case, the valves will close from the open position and a loud first heart sound will result.<sup>4</sup> This mechanism is illustrated in Figure 4 where the intensity of the first sound recorded from two patients with varying degree of block of the atrioventricular node is plotted against the corresponding P-R interval from the electrocardiogram. The first sound is clearly loudest in these patients when the P-R interval is less than 0.16 seconds or more than 0.64 seconds.

Figure 4.



Plot of the relative intensity of the first heart sound taken from phonocardiograms of two patients with complete atrioventricular block and varying P-R intervals.

The marked decrease in the intensity of the first heart sound as the P-R interval increases from 0.14 seconds to 0.24 seconds in Figure 4 illustrates a clinical method for evaluating a delayed atrioventricular conduction. This can be

helpful, for example, in acute rheumatic myocarditis where first degree block often occurs. A soft first heart sound in this condition would suggest that atrioventricular conduction was prolonged. On the other hand a normal conduction time is probably present if the first sound is sharp and louder at the apex than the second sound.<sup>5</sup> This explanation also underlies the beat-to-beat variation in the intensity of the first heart sound found in patients with complete atrioventricular block. In this case, the intensity varies according to the interval between the preceding atrial systole and ventricular contraction. A slow heart rate due to a sinus bradycardia or a constant degree of atrioventricular block will not show this variation because the P-R interval is constant in these conditions. This can be a valuable diagnostic tool.<sup>6</sup>

In atrial fibrillation a mechanism similar to that just described for atrioventricular block also appears to operate. In this condition atrial contraction is abolished and, therefore, cannot act to preposition the valve cusps prior to ventricular contraction. As a result they are free to float open or toward closure according to the flow of blood from the atria into the ventricle. Major ventricular filling occurs early in diastole when the blood that has been held in the atrium behind the closed atrioventricular valves during systole rushes into the ventricle. Late in diastole ventricular filling is reduced to the level of venous return. The outcome is a beat-to-beat variation in the position of the valve cusps at the beginning of systole according to the duration of the previous diastole. This produces a variation in the intensity of the first sound similar to that obtained with complete atrioventricular block. This abnormality, however, usually can be distinguished clinically from atrioventricular block by the irregular irregularity of the radial pulse.

In mitral stenosis the first heart sound is characteristically loud and snapping in quality. This frequently is the earliest auscultatory feature of the disease and sometimes can be identified before the usual diastolic rumble is clearly apparent. This change in the intensity and character of the first sound results from the obstruction to blood flow through the mitral valve. This acts to reduce the major flow through the valve orifice that occurs early in diastole and to cause appreciable filling of the ventricle to continue until the onset of systole. As a result the mitral valve is held open until the onset of ventricular contraction and closes with a loud sound. In addition, the elevation in



left atrial pressure that follows mitral valve obstruction tends to delay closure of that valve. The result is a tendency for the mitral component of the first heart sound to be delayed. This sound then fuses with the tricuspid component and the two together appear as a single sound with a loud snapping quality.

### Conclusion

The clinical art of auscultation requires practice, patience, and an understanding of the physiological mechanisms responsible for the acoustic phenomena of the heart. In this paper the first cardiac sound has been singled out for review and the effect of various clinical conditions on its timing, intensity, and pitch have been summarized. It is our hope that this discussion will be helpful in the bedside diagnosis of cardiac problems and will make the auscultatory finding more meaningful.

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### SINGLE HEALTH PLAN FUTILE, AMA PRESIDENT SAYS

In an address to the American Medical Association House of Delegates in New York, Gerald D. Dorman, M.D., the new president, said that physicians cannot delay meeting the demanding obligations which are the price of leadership in medical and health care. Regarding the delivery of care, Dr. Dorman said that the search for a single plan to solve all problems is futile, and the profession must develop incentives to extend the effectiveness of all personnel and resources. "Medical attention must be oriented to the patient — not to an institution," he said. For this reason, physicians believe that the way to improve service and efficiency is to encourage flexibility and develop incentives, he added.

### CONSUMER SPENDING OUTLOOK

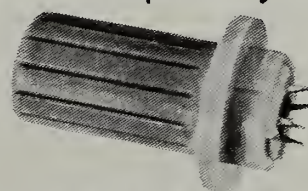
The outlook for consumer spending is for moderate gains only, according to **BUSINESS WEEK**. Some areas, for example, are doing fine, including department store and automobile sales. But gains in volume for food stores only match the increase in prices, and restaurants are falling behind.

### FEWEST INJURIES KEY TO FOOTBALL TEAM'S SUCCESS

The key to a football team's success lies in having the least number of severe injuries, especially to the top players, according to Don Shula, coach of the Baltimore Colts. "Injury to a professional player is a nightmare to his coach as well as to the player," Shula told a workshop on football injuries sponsored by the National Research Council and the National Football League. "The coach is primarily concerned with winning games, and this fact is often overlooked by researchers who come to us with ideas on injury prevention from studies conducted in the laboratory," he said. "The result is that there is a credibility gap between them and the coaches."

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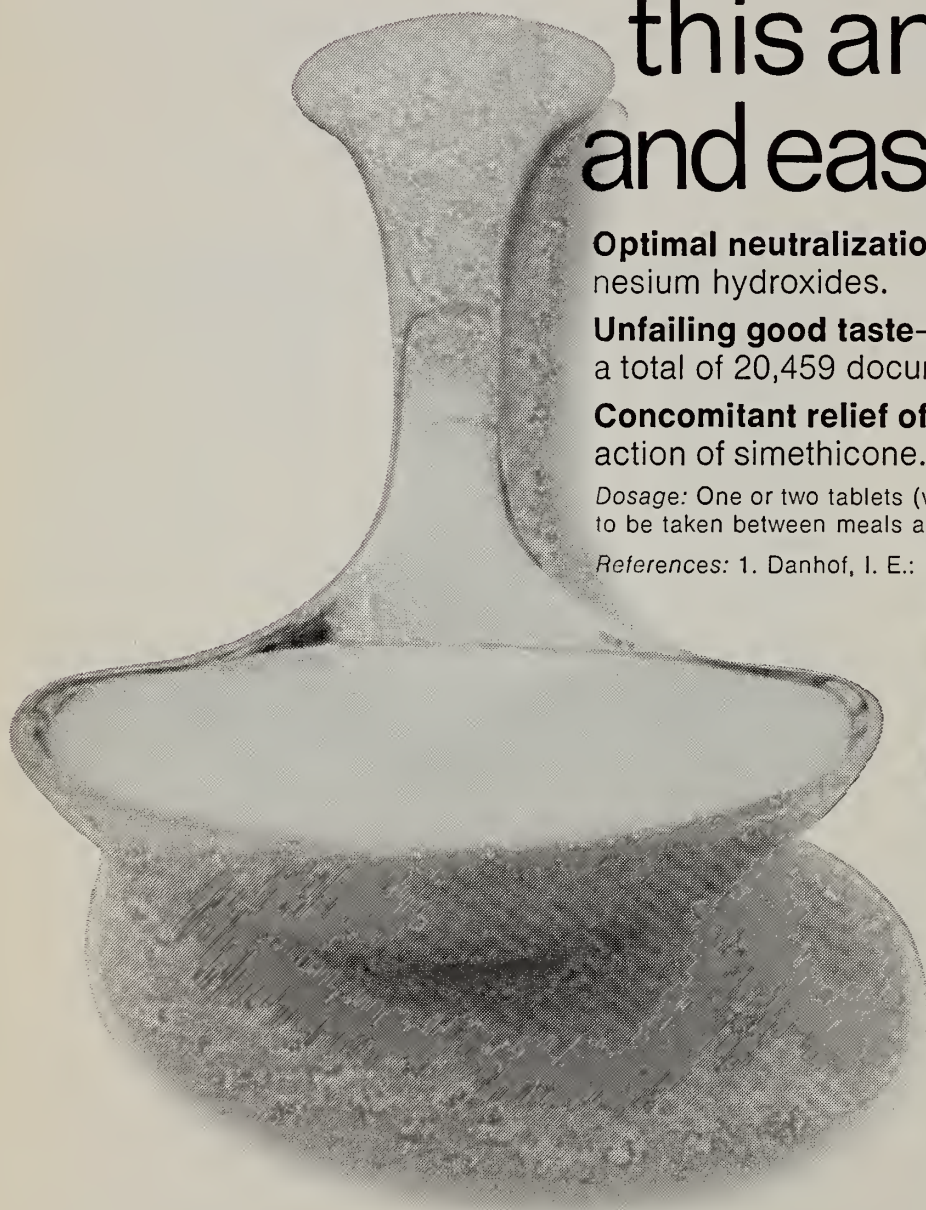
*Dosage:* One or two tablets (well chewed or allowed to dissolve in the mouth); one or two teaspoonfuls to be taken between meals and at bedtime, or as directed by physician.

*References:* 1. Danhof, I. E.: Report on file. 2. Hoon, J. R.: Arch. Surg. 93:467 (Sept.) 1966.

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# Scientific

# PAPER

## CARDIOVASCULAR ROENTGENOLOGY: CONVENTIONAL STUDIES

by

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Cardiac fluoroscopy and chest roentgenography complement history, physical examination and electrocardiography for the optimal evaluation of patients who have known or suspected cardiovascular disease.

Fluoroscopy is best accomplished using an image intensifier with optical or television monitoring. The major contribution of cardiac fluoroscopy is for the identification of abnormal calcifications, for the detection of abnormal cardiac contractility and for the analysis of chamber enlargement. Cardiac fluoroscopy also aids in the recognition of pericardial effusion and the analysis of cardiac contractility and great venal pulsation. Diaphragmatic mobility and changes in size of pulmonary nodules or masses when performing the Valsalva and Muller maneuver may be observed via fluoroscopy.

Cardiac fluoroscopy especially in infants, children and women in the child bearing age should be conducted using minimum exposure and maximum patient protection. It is our policy to analyze the chest roentgenograms prior to the fluoroscopic examination. A barium swallow study should be done as part of the fluoroscopic examination. Routine chest roentgenograms for cardiovascular evaluation at our institution includes the following 5 films: 1. Postero-anterior chest roentgenograms without barium; 2. Left

antero-oblique view at 45° without barium; 3. Right antero-oblique view at 60° with barium; 4. Left lateral view with barium, and 5. Postero-anterior view, overpenetrated with barium. Because the heart is a three dimensional structure all these views are essential for complete evaluation of chamber enlargement.

Overall size of the heart is evaluated by the cardiothoracic ratio, which is the maximum transverse diameter of the heart divided by the maximum internal transverse diameter of the chest. This ratio should be less than 50% except in extreme obesity, or when the diaphragm is elevated causing the heart to adopt a horizontal position. Cardiomegaly may be misdiagnosed in the presence of a prominent pericardial fat pad. The latter is easily recognized by the relative translucency observed around the apex of the left ventricle at the left cardiophrenic junction. A pericardial fat pad may also exist at the right cardiophrenic angle.

In the postero-anterior view, the right heart border has two arches. The cephalic one is the vascular arch caused by the ascending aorta in adults, by the superior vena cava and right lobe of the thymus in infants and young children, or by the superposition of the ascending aorta and the superior vena cava in certain individuals. The caudal arch of the right heart border is formed by the right atrium.

Prepared by the **South Dakota Heart Association** for this Journal.



The upper portion of the left heart border in the frontal projection is formed by the aortic knob (junction of transverse and descending portions of the thoracic aorta). The middle arch is formed by the left border of the pulmonary trunk (upper 2/3), left auricular appendage (lower 1/3), and the proximal portion of the left branch of the pulmonary artery. The caudal arch of the left heart border is formed by the left ventricle.

**The left anterior oblique projection separates the left from the right heart chamber.** The latter occupies the anterior half of the heart. The posterior heart border is symmetrically convex and appears separated from the left bronchus by a radiolucent area representing aerated lung parenchyma. The anterior half of the heart is occupied by the right atrium superiorly and the right ventricle inferiorly. A line extending the anterior border of the trachea divides the heart in two almost equal halves and usually indicates the plane of the interatrial and interventricular septa. The left anterior oblique projection is utilized during selective angiocardiology for the study of left-to-right shunts at the atrial or ventricular levels. Contrast medium injected into any of the left heart chambers, if seen to be directed anteriorly, indicates the presence of a left-to-right intracardiac shunt. This is also an excellent view for evaluating valvular, subvalvular or supra-valvular aortic pathology. The left anterior oblique projection unfolds the thoracic aorta. Left ventricular outflow tract obstructions are best analyzed in this projection. This is the projection of choice for selective injection of the right and left coronary arteries. The right coronary artery is directed anteriorly and the left coronary artery posteriorly. The anterior descending division of the left coronary artery crosses the mass of the heart in the left anterior oblique projection.

**The right anterior oblique projection is the view that separates the atria from the ventricles.** The right anterior oblique projection should be taken at 60°. The reason for this is that it requires this degree of rotation of the patient in order to separate the heart from the spine. The left and right atrium are projected posteriorly and the right and left ventricle are superimposed anteriorly. This view is most important for selective ventriculography for the evaluation of pathology of the atrioventricular valves. It is also a very important view for the evaluation of the atrial enlargement.

**The left lateral view of the heart separates the left atrium and left ventricle posteriorly from the right ventricle and right atrium anteriorly.** In the lateral projection of the heart, on deep inspiration one usually sees a vertical line crossing the angle formed by the posterior heart border (diaphragmatic portion of the left ventricle) and the left leaf of the diaphragm. This line corresponds to the posterior wall of the inferior vena cava. When the posterior heart border projects dorsal to the caval line this usually is indicative of left ventricular enlargement. The left lateral projection is of importance for the evaluation of heart size in the ventro-dorsal direction, for the evaluation of left atrial, left ventricular and right ventricular enlargement, for the diagnosis of obstructive airway disease (i.e. diffuse obstructive pulmonary emphysema), and for the recognition of thoracic wall deformities, such as sternal depression and the so-called Straight Back Syndrome. This is an excellent view for the analysis of the size of the primary division of the pulmonary artery. The right pulmonary artery usually projects as an oval shadow just caudal and ventral to the tracheal bifurcation. The left pulmonary artery courses above and dorsal to the left bronchus.

**The overexposed frontal view of the heart** is of value for the recognition of abnormal cardiac calcification, for the detection of an enlarged left atrium, for best localization of the thoracic aorta, and for the analysis of esophagus-heart relationships. The postero-anterior view of the heart is used for the evaluation of heart size in the frontal plane, and of cardiovascular configurations. The heart is said to have an "aortic or left ventricle configuration" when the left ventricular arch and the aortic knob are prominent. This determines relative narrowing of the waist of the heart (relative concavity of the middle arch of the left heart border). The "mitral configuration" is said to be present when the shadow of the aortic knob is small, the middle arch of the left heart border appears to be straight or convex, and the left ventricular arch is inconspicuous. The left heart border follows a straight line directed from midline to the left hemidiaphragm. A double density caused by left atrial enlargement and inversion of the pulmonary vasculature (upper, medial pulmonary vessels appears larger than lower medial pulmonary vessels) complete the picture of the "mitral cardiovascular syndrome." The "left-to-right shunt configuration" is said to be present when there is marked convexity of the middle



arch of the left heart border and uniform pulmonary vascular plethora. "Fallot configuration" is said to be present when there is prominent rounding of the left ventricular border which appears raised above the diaphragm, the middle arch of the left heart border appears concave, and the shadow of the aortic knob is barely visible. This heart configuration is usually associated with pulmonary hypovascularity (secondary to right-to-left shunt). This group of findings is not pathognomonic of Fallot's Tetralogy. It may be seen with other anomalies such as tricuspid atresia and persistent truncus arteriosus. The so-called "Water Bottle Configuration" is said to be present when the right and left heart borders appear rather symmetric. There is enlargement of the transverse diameter of the heart. The pulmonary vasculature appears to be normal or decreased. This configuration is the consequence of massive pericardial effusion and of cardiac dilatation (primary and secondary myocardiopathies).

Of all the heart chambers the left atrium is the easiest to analyze. It is the most posterior chamber of the heart and hence contacts the esophagus. When the left atrium is enlarged, in the frontal projection one may see slight convexity of the lower third of the middle arch of the left heart border due to dilatation of the left auricular appendage. A disc-like density appears in the center of the heart and causes a double density on the right heart border and occasionally accounts for a third arch at the right heart border (the middle one). The interbronchial angle may appear to be widened (greater than  $70^\circ$ ) when enlargement of the left atrium is directed superiorly. In extreme left atriomegaly, the esophagus may appear displaced to the right or to the left of the midline. Rarely, one may see atelectasis of the left lower lobe secondary to obstruction of the left lower lobe bronchus from a markedly enlarged left atrium.

In the left anterior oblique projection the enlarged left atrium will obliterate the clear infrabronchial space. One may see elevation of the left main bronchus. In the right anterior oblique projection the esophagus will no longer parallel the thoracic spine. Variable degrees of esophageal displacement may be encountered. Elongated marked esophageal displacement indicates marked left atrial enlargement usually seen with severe degree of mitral insufficiency. Localized, slight esophageal displacement indicates mild left atrial enlargement and predominant mitral stenosis.

Right atrial enlargement is best evaluated in the left anterior oblique projection. Prominence of the superior aspect of the anterior heart border, usually reflects enlargement of the right auricular appendage. In the frontal projection, the right atrial border may appear displaced to the right and cephalad. There may be cephalic displacement of point B (junction of the right atrial border and the vascular arch). The right anterior oblique and left lateral projections are not helpful for the evaluation of right atrial enlargement.

Enlargement of both ventricles will displace the apex of the heart caudally and towards the left. However, enlargement of the right ventricle is suspected with convexity of the middle arch of the left heart border. As the right ventricle is not a border forming structure in the frontal projection, indirect evidence of right ventricular pathology is suspected whenever one observes convexity of the middle arch of the left heart border and abnormal pulmonary vascularity. Pulmonary valvular stenosis, left-to-right shunts and pulmonary arterial hypertension are the most common causes of convexity of the middle arch of the left heart border. Rarely, the ascending aorta may occupy the middle arch of the left heart border (in corrected transposition of the great arteries, for example). In some instances abnormal convexity of the middle arch of the left heart border is related to herniation of the left auricular appendage through a partial pericardial defect or to a non-vascular condition such as an enlarged thymus, tumor, adenopathy, etc.

The left lateral projection of the heart provides for the best profile analysis of the right ventricle. The closeness of the anterior heart border to the sternum is not a good sign of right ventricular enlargement. In patients with a narrowed antero-posterior diameter of the chest, the heart is close to or contacts the sternum. The left and right anterior oblique projections are not informative for the evaluation of right ventricular enlargement.

The best view for evaluating left ventricular enlargement is the left anterior oblique projection. In this view when the left ventricle is enlarged it usually overlaps and may project beyond the thoracic spine. The angle formed between the left ventricle and the left hemidiaphragm may become obtuse. The right anterior oblique projection is not useful for evaluating left ventricular enlargement. In the frontal pro-



jection the shape of the left ventricular arch may reflect volume (broad large arch) and pressure (rounding, short arch) hypertrophy.

Pressure hypertrophy of either ventricle may be radiographically silent. Physical findings and electrocardiography are usually more sensitive than conventional roentgenography for the establishment of right or left ventricular hypertrophy. However, volume hypertrophy of either ventricle modifies heart size and configuration and will exaggerate the convexity of these chambers.

Asymmetric enlargement of the ascending aorta may be seen with aortic valvular stenosis (post-stenotic dilatation) and with syphilis. When the aorta becomes dilated and tortuous the descending aorta may project beyond the middle arch of the left heart border. In such instances, the right superior mediastinum may show a convex density usually caused by a tortuous dilated and/or displaced innominate artery. Arteriosclerosis dilates and at the same time elongates the thoracic aorta. As the thoracic aorta has a fixed position at the level of the aortic valve and at the aortic hiatus of the diaphragm, elongation will occur and will displace the aortic anteriorly, cephalically, toward the right, and dorsally, beyond the thoracic spine. Analysis of calcification at the level of the thoracic aorta is important. Dissecting hematoma, and lues (with ascending aorta calcification) cause characteristic findings. Pericardial, coronary artery and valvular calcification are best analyzed at fluoroscopy. The best view to separate mitral from aortic valvular calcification is the left anterior oblique view. Aortic valvular calcification will project in the center of the heart and will have a cephalo-caudal (head-foot) motion. Mitral valvular calcification will project in the posterior third quadrant of the heart and will have a reverse C shaped motion.

#### EGEBERG CALLS FOR BETTER CARE OF POOR

Dr. Roger O. Egeberg, the American Medical Association's first invited speaker at its annual meeting, told delegates: "We have to think in terms of caring for the poor. We must reach out and find new ways to distribute medical care to them . . ." The newly-appointed assistant secretary for health, HEW, also said the AMA and government "won't be able to work together if we are to be walled off from each other."

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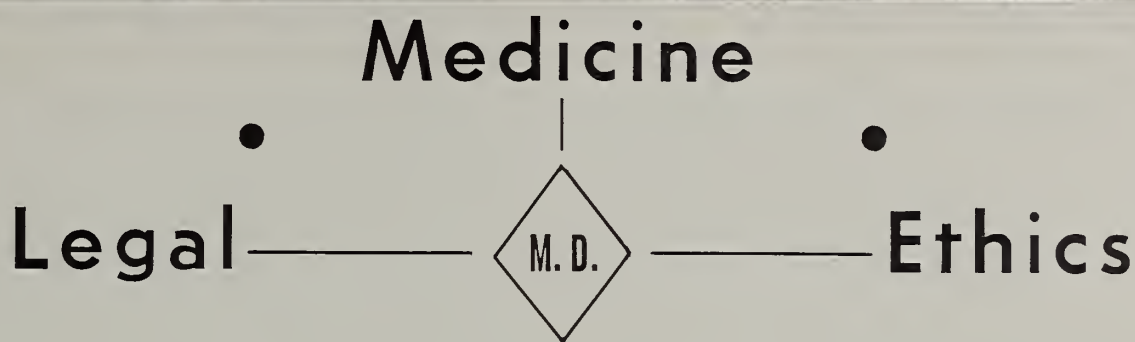
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### **BLOOD TRANSFUSION ORDERED OVER RELIGIOUS OBJECTIONS**

A blood transfusion was ordered by an Illinois trial court for a 2-day-old infant whose parents refused, because of their religious beliefs as Jehovah's Witnesses, to consent thereto. There was medical evidence that the infant was suffering from a blood disorder and that if she did not receive an exchange transfusion she would incur severe permanent brain damage.

\* \* \*

### **WRONGFUL DEATH ACTION ALLOWED FOR PRENATAL INJURIES**

The parents of a child who was born alive but died two days later, allegedly as the result of prenatal injuries sustained when her mother was involved in an automobile accident, could maintain an action under the Wrongful Death Statute against the allegedly negligent driver. A trial court's dismissal of the suit for failure to state a cause of action was reversed and the case remanded for trial by the Texas Supreme Court.

A right of action exists under the Wrongful Death Statute only where the injured party could have maintained an action for damages if death had not ensued. The Supreme Court overruled its prior decisions and adopted the modern view that a child who is born alive has a cause of action for prenatal injuries. Decision was reserved on the questions of whether a cause of action would exist if the fetus were not viable when the injuries were sustained or if the child had NOT been born alive.

\* \* \*

### **HOSPITAL GRANTED CHANGE OF VENUE**

A Trial court erred in denying a hospital's motion for a change of venue in a patient's suit against it for injuries caused by allegedly neg-

ligent treatment, a New York intermediate appellate court ruled. The cause of action arose in Seneca County. Suit was brought in Kings County. In support of its motion, the hospital specified 33 witnesses, 24 of whom were residents of Seneca County. It gave the names and addresses of the 24 witnesses and the substance of their proposed testimony. In his affidavit in opposition to the motion, the patient listed the names of 86 persons as prospective witnesses. However, he did not give their addresses or state the substance of their proposed testimony. The appellate court granted the change of venue.

\* \* \*

### **PAYMENT FOR PROFESSIONAL SERVICES**

The ethical physician, engaged in the practice of medicine, limits the sources of his income received from professional activities to services rendered the patient. Remuneration received for such services should be in the form and amount specifically announced to the patient at the time the service is rendered or in the form of a subsequent statement.

Unethical methods of inducement to refer patients are devices employed in a system of patronage and reward. They are practiced only by unethical physicians and often utilize deception and coercion. They may consist of the division of a fee collected by one physician ostensibly for services rendered by him and divided with the referring physician or physicians or of receiving the entire fee in alternate cases.

When patients are referred by one physician to another, it is unethical for either physician to offer or to receive any inducement other than the quality of professional services. Included among unethical inducements are split fees, rebates, "kickbacks," discounts, loans, favors, gifts, and emoluments with or without the knowledge

Information provided by the Law Dept., AMA, 535 N. Dearborn St., Chicago, Ill.

(Continued on Page 56)



## Path C A P sule

Submitted by the College of American Pathology in connection with the South Dakota Society of Pathologists.

### BLOOD CULTURE

The results of blood culture studies can provide important information to the physician concerning the presence of septicemia in his patient, the type of bacterial pathogens involved and ultimately the antibiotics to which the organism is susceptible. The negative culture would be helpful in ruling out bacterial etiology of a present illness if the methodology used in blood culture were reliable to this extent. Unfortunately, this is not the case. Given a patient with overt septicemia, the demonstration of bacteria by culture methods from a blood specimen of this patient depends on many factors. Of great importance is the number of bacteria present per unit volume of blood. Realizing that there are minimal levels of organisms necessary to initiate growth one may find that a suitable inoculum is not contained in the normal volume of blood drawn for culture (5-10 ml.). This volume should be increased to 20-30 ml.

The current status of bacteremia at the time the specimen is taken must be considered and is a critical determining circumstance. Organisms may be shed into the circulatory system in "showers" so that at any one time great numbers may be present. Within a few hours these organisms may be cleared from the circulation and then reappear in another shower a few hours later. If blood is drawn between these times of high count bacteremia the likelihood of obtaining spuriously negative results is increased. Timing is of less importance in a septicemia in which large numbers of organisms are consistently present in the blood during the early course of the illness.

Antibacterial therapy prior to taking the specimen may, of course, largely determine the success or failure of blood culture. If there is a high level of circulating antibiotic, even though this level is inadequate to kill the organisms in the blood, there may be enough carry-over into the culture to either kill the organisms or suppress their *in vitro* reproduction. When the laboratory is informed of the antibiotics that the

patient has received, growth suppression may be avoided by technical manipulations, e.g., addition of penicillinase to the medium.

The practice of taking multiple specimens greatly increases the chances of obtaining positive cultures. While it usually is not necessary to repeat blood cultures every two hours around the clock, it is certainly to the physician's advantage to take blood cultures at the time when the organisms are expected to be present in the greatest number. The physician should order blood culture studies during each febrile episode. If subacute bacterial endocarditis is suspected, culturing on alternate days for two to three weeks may be required to yield positive findings. Frequently, diagnosis by culture has been established only after the cessation of antibiotic therapy for several days.

Normally, positive blood cultures will not be recognized until after 18-24 hours of incubation. Although this is a long interval to wait in the case of a critically ill patient, it is necessary. The microscopic examination of the whole blood specimen will but rarely disclose the presence of bacteria, although staining the buffy coat is slightly more efficient in detecting bacterial forms.

Overt pathogens that are associated with specific diseases are not difficult to evaluate when isolated from culture. However, there are a number of organisms that are known to be a part of the normal flora of the body that can and do cause a severe or life threatening illness when they find their way into the circulatory system. Since these organisms, notably, coliforms, **Staphylococcus albus**, various alpha hemolytic streptococci, and diphtheroids are also found on the skin and other body surfaces, culturing one of these organisms from the blood always raises some doubt as to whether the organism was actually in the blood or occurred as a contaminating organism at the site of venipuncture. A rule of thumb to use in guiding the physician is that if one of these organisms is repeatedly cultured from the blood this constitutes firm evidence that they are indeed from the circulation and are regarded as pathogenic, rather than representing dermal contamination.

Summarily, negative blood culture results are of doubtful value as a diagnostic aid. The practice of taking a blood culture during the temperature rise, and of taking a multiplicity of cultures over a time period of several days will markedly increase the possibility of obtaining a positive culture. When antibiotic therapy has

(Continued on Page 56)





# CLINICOPATHOLOGICAL CONFERENCE

*From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Departments of Pathology of the Hospital and of the School of Medicine of the University of South Dakota*



JOHN F. BARLOW, M.D.\*  
*Pathologist - Editor*

B. J. BEGLEY, M.D.\*\*  
*Urologist - Discusser*

## A 39 YEAR OLD CAUCASIAN MALE WITH PAINLESS HEMATURIA OF TWO DAYS DURATION

### CASE NO. 432751

This 39-year old farmer was admitted to Sioux Valley Hospital on 12/20/66 with gross, total painless hematuria of two days duration.

The patient first had problems seven years prior to admission when he had fever, chills, and *E. coli* had been cultured from the urine. The patient had had recurrent episodes of fever, back pain, chills three to four times per year since. These were all treated with sulfa drugs or other unknown medications. He had one episode of hematuria six years prior to admission but denied passage of stones or gravel. He had nocturia once per night and had noted decrease in the size of the stream recently. He had no family history of tuberculosis or tuberculosis contact. An intravenous pyelogram seven years previously had suggested tuberculosis but cultures were negative.

Review of systems was negative. He had had an appendectomy in 1932.

Physical examination revealed a slender alert white male who was pale but in no distress — blood pressure 104 systolic and 60 diastolic, pulse 72/min. and regular, respirations 24/min., temperature 99.2 (on admission). The examination of the head and neck was unremarkable. The chest was clear to auscultation and percussion. The heart had a normal sinus rhythm with no murmurs. The abdominal exam showed a spleen palpable 3 cm. below the costal margin noted by one observer. No other masses

or tenderness were felt. There was no costo-vertebral angle tenderness. The testes were descended and unremarkable. A number 16 catheter was inserted and 30 cc. of residual bloody urine was found. The prostate was enlarged, broad, and hard. It felt like adenocarcinoma. Neurologic examination was negative.

**Admission clinical pathology data:** Urinalysis — turbid, specific gravity 1.007, pH 6.0, protein 1+, glucose — negative, ketones — negative, hemoglobin — large amount, microscopic: 10-15 leukocytes/hpf, 100-125 red cells/hpf and a few epithelial cells. Hgb. 15.7 gms/100 ml., red count 5.12 million/mm<sup>3</sup>, hematocrit 43 Vol. %, mean corpuscular hemoglobin 31 micromicrograms, mean corpuscular volume 85 cubic micra, mean corpuscular hemoglobin concentration 37%. Total leukocyte count 6,900/mm<sup>3</sup> with a differential of 60% neutrophils, 5% eosinophils and 35% lymphocytes. The platelets were adequate on smear. The red cells were normochromic and normocytic. Fasting blood sugar was 118 mgs/100 ml., blood urea nitrogen was 18 mgs/100 ml., creatinine 1.2 mgs/100 ml., calcium 9.2 mgs/100 ml., phosphorus 3.9 mgs/100 ml. Repeat calcium and phosphorus determinations on two occasions were also within normal limits. Uric acid was 4.0 mgs/100 ml. Prothrombin time was 12.0 seconds with a 12.5 second control. Partial thromboplastin time was 41.0 seconds with a 42.0 second control. Test for fibrinolysis was slightly positive (not significantly abnormal in this laboratory). The acid phosphatase was 0.49 units total and 0.05 prostatic (within normal range).

Skin tests for tuberculosis, blastomycosis, histoplasmosis and coccidioidomycosis were nega-

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tive. There was no antibody titer in the serum to brucella or tularemia on two occasions. Cultures of urine from bladder and each kidney for mycobacteria, fungi and routine bacteria were negative. A chest film was negative. An intravenous pyelogram showed renal calcification suggesting old infection with secondary parenchymal calcification. There was delayed excretion on the right. There was also right paraspinal calcification. Tuberculosis was suggested. A retrograde pyelogram showed the calcification above. A cystoscopy showed no obstruction in the prostate. The bladder was unremarkable. Ureteral orifices were normal and there was efflux of clear urine. A prostate biopsy revealed caseous granulomatous prostatitis. Special stains for mycobacteria and fungi were negative. Re-biopsy of prostate and culture for mycobacteria, fungi and brucellosis were negative. Repeat skin tests were negative. The patient's bleeding stopped on epsilon-aminocaproic acid and he was discharged.

The patient did well until December, 1968 when he developed fever and right flank pain. This did not respond to sulfa as did a similar episode one year previous. He was admitted on 1-12-69 for fever up to 103° and flank pain. An intravenous pyelogram before admission demonstrated the previously seen calcification. The physical examination was unchanged but the spleen was not felt.

The patient responded to tetracycline. Clinical pathology data showed repeat hemoglobin, hematocrit, red count, blood sugar, blood urea nitrogen, and calcium to be within normal limits. Total leukocyte count was 4,100 with 50% neutrophils, 7% neutrophilic bands, 2% eosinophils and 41% lymphocytes. Repeat cultures of urine and tuberculin skin test were negative. Repeat chest film was negative. A serology was nonreactive.

Because of recurrent fever and flank pain, the patient was readmitted on 2-5-69 for right nephrectomy.

DR. BEGLEY: In summary, we have a 39-year old farmer with a 7-year history, when he presented in 1966, of recurrent urinary tract or prostatic infection. He then complained of total painless hematuria. This long history immediately defines a chronic urinary tract problem. The first possibility that you think of would be an obstruction of some nature and the second would be a chronic focus of infection somewhere in the genitourinary tract. The presence

of total gross painless hematuria certainly brings to mind a bladder tumor but this should certainly not have been present for 7 years. There is nothing mentioned in the protocol about the allergic history of this man and nothing mentioned about where he had spent his life geographically. These points may be of interest.

In the physical examination, the presence of a spleen noted by one observer is interesting but I do not know how to evaluate the significance of this observation since only one person noted it. Of more interest was the prostate examination which was large, broad and hard. The description does not state whether the gland was regular or whether it was irregular with intervening soft areas between the harder areas. Certainly a man who has a 7-year history of urinary tract infection could have multiple indurated areas in his prostate which was a result of scarring from multiple bouts of infection. Even though this man was young, a discrete hard nodule would be more indicative of carcinoma. Hard irregular areas scattered throughout the prostate gland can be seen in tuberculosis. Another helpful finding would be whether a notation as to whether the seminal vesicles were enlarged and palpable; whether the epididymes were tender, indurated, large, or congested and whether the vasa deferentia were enlarged or palpable. These points would be of some significance if one were considering a tuberculous infection.

The most significant portion of the laboratory data is the x-ray which shows renal calcification. I was not sure from the protocol whether this was unilateral or bilateral calcification but I find looking at the x-ray that it is unilateral calcification confined to the right kidney. This film shows the calcification of the right kidney and the paraspinal calcification adjacent to the right kidney. There is no area of calcification in the left kidney or adjacent to the left kidney. There is no evidence of calcification in the region of the seminal vesicles or vas deferens. These findings might be of significance in arriving at the diagnosis of tuberculous infection. There is no evidence in any of the bony structures of osteoblastic metastases which one might see from carcinoma of the prostate. There are no osteolytic areas either. Serial films show the calcification in the paraspinal region again in 1968. Lateral films do show the calcification to be posterior to the peritoneum. There is also a gallbladder series which shows good filling of the gallbladder and no calcification.



An important piece of laboratory data is that the calcium and phosphorus were within normal limits on several occasions. The x-ray finding could represent nephrocalcinosis which is usually bilateral and caused by hyperparathyroidism. There is no suggestion of renal tubular acidosis which would be manifested by hyperchloremic acidosis. This is another cause of nephrocalcinosis. A third cause of nephrocalcinosis would be chronic infection. Indeed, I feel that this unilateral calcification in this case falls in this realm. I might mention that nephrocalcinosis means that there is calcification within the tubules and parenchyma and is distinct from nephrolithiasis or renal calculi which are situated in the collecting system. The subsequent intravenous pyelogram shows the left kidney to have normal excretion while the right kidney shows some delay in excretion — an indication of its poorer function. The right kidney is not well outlined while the left kidney is apparently normal. The bladder shows a nice smooth outline and good filling which indicates that the patient's prostatic disease was not causing any degree of obstruction or you would see irregularity or trabeculation of the bladder from the bladder muscle hypertrophy. Subsequent intravenous pyelograms show in addition to the increased calcification in the right kidney deterioration of function of the right kidney. The left kidney continues to look normal.

With this picture of renal calcification and calyceal distortion on intravenous pyelogram, I think that the best possibility is renal tuberculosis. Tuberculosis of the urinary tract is almost always secondary from the lungs or the bone. The chest film has been reported as normal. Still the most likely possibility from the renal standpoint is tuberculosis. I would like to try to tie this in with the hard prostate. An inflammatory gland could be described this way but I will have to assume that a knowledgeable observer believed that this gland felt like the irregular hard areas of carcinoma of the prostate even though this was a young man. Therefore, there was an indication for biopsy of the prostate. I assume that this was a needle biopsy which is the easiest good biopsy to do. If you hit the nodule, a needle biopsy is a very accurate procedure. An open perineal biopsy is probably more accurate but in this case a diagnosis of tuberculosis is expected and open perineal biopsy would not be desirable. When carcinoma of the prostate was not found on the original specimen, I believe that the rebiopsy was done for the purpose of culturing for tuberculosis or

fungus organisms. Again, granulomatous prostatitis was found and carcinoma was not present. Both biopsies, however, failed to reveal fungus or tuberculous organisms. The serology was negative but this is not the picture of a syphilitic prostatitis anyway. In non-specific granulomatous prostatitis, the patients often have a history of allergy or asthma and none is mentioned in the protocol.

Another possibility is a rare granulomatous disease such as Wegener's granulomatosis which can cause a granuloma of the prostate and a generalized arteritis like periarteritis nodosa as well as a glomerulonephritis. These diseases are not indicated in the protocol. A bladder tumor is ruled out by the cystoscopy. We get down to the last paragraph where it says that a right nephrectomy was performed. This will give us the diagnosis. I don't know what it is. I suspect tuberculosis even though the laboratory could not provide us with that diagnosis. \*DR. OLSON: They would never have presented that case (Laughter).

DR. BEGLEY: An exotic granuloma of the prostate such as actinomycosis, histoplasmosis or coccidioimycosis is possible.

#### DR. BEGLEY'S DIAGNOSIS

##### GRANULOMAS OF THE KIDNEY AND PROSTATE, QUESTION TUBERCULOSIS

\*\*DR. GIEBINK: Before we get on to the diagnosis, would you describe how you do a prostatic biopsy?

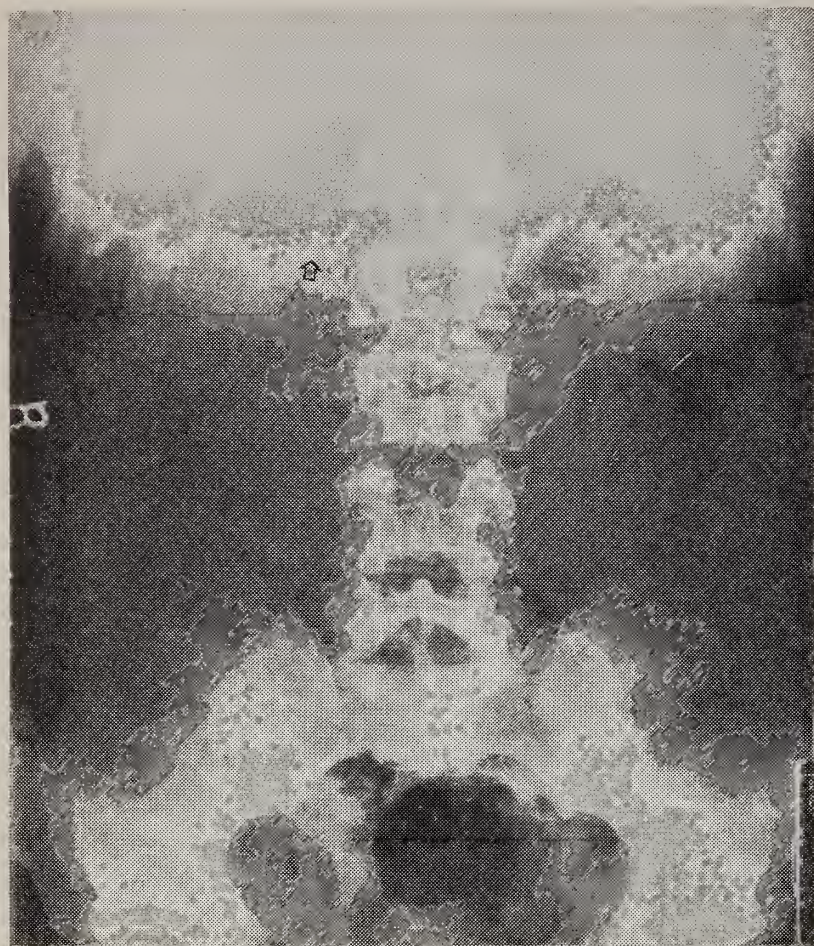
DR. BEGLEY: There are two methods of needle biopsy — Perineal and transrectal. Many still do perineal biopsies but the big problem with these is that they are inaccurate. The inaccuracy is predicated upon hitting a small nodule in the prostate and hitting it accurately. My own feeling is that you can hit these nodules better through a transrectal approach because you can feel the nodule. I also give the patient a general anesthetic because this relaxes the anal sphincter and provides better palpation of the gland. The accuracy of prostatic biopsies has been quoted as 75%. I feel that it is really higher than this. Long ago, when we used to do open perineal biopsy it was felt that the rectum was sacred. Then in Cleveland at the Veterans Hospital a physician decided that instead of doing open perineal biopsy he would do a transrectal

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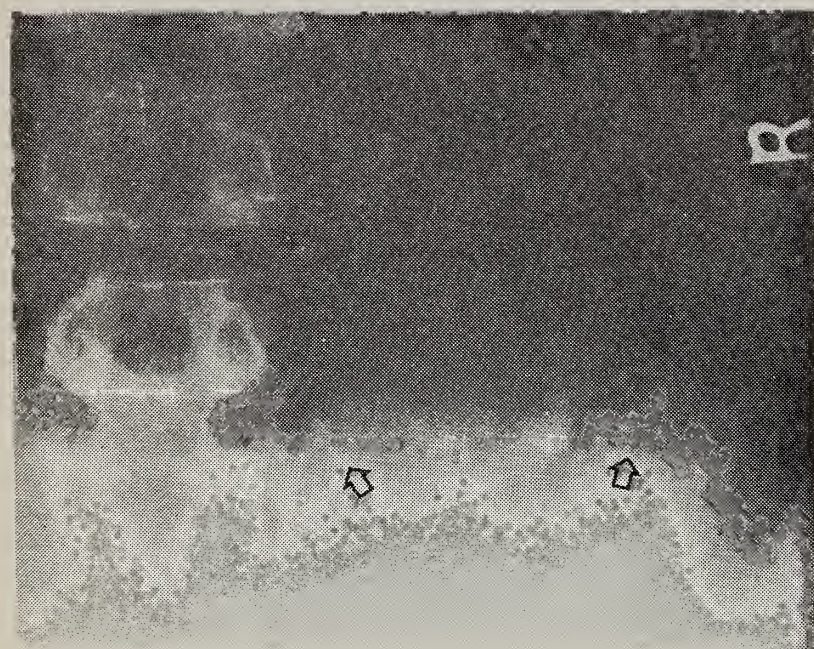


Figure I.



Note calcification which was shown to be in kidney and psoas abscess (arrow) on plain film.

Figure II.



Closeup of calcification shown on previous picture.

biopsy. He put retractors in the rectum and opened the anterior rectal wall and got a biopsy. I have done a few of these and control of hemorrhage is a problem in a dark hole.

\*DR. ORTMEIER: Well, don't you just do a needle biopsy?

DR. BEGLEY: Yes, I am referring to the development of prostatic biopsy. First, open perineal biopsy was done and then the open trans-

rectal biopsy. Since it was found that you could do an open rectal biopsy as I have described, it certainly suggested that you can go through the rectal wall with a needle. I guide the needle with my finger into the nodule. I get good diagnostic accuracy. Those who still prefer needle perineal biopsy feel that there is less chance of infection and less chance of spread of cancer into the rectum with the perineal approach. I feel that the risk of those complications is extremely small. Others feel that if you are going to do a total radical prostatectomy later, a transrectal biopsy can cause bleeding and difficulty in your dissection for the radical prostatectomy. This has not been my experience.

DR. GIEBINK: What position do you use?

DR. BEGLEY: I use the lithotomy position. I use this because I am often doing a cystoscopy at the same time. Some people use the knee chest position and the nice thing about this is that the prostate is thrown against the pubis and you can often examine the prostate better and feel nodules better. However, I have had no difficulty getting a good biopsy in the lithotomy position.

DR. GIEBINK: What type of needle do you use?

DR. BEGLEY: I use a Silverman-type of needle with an obturator.

\*DR. OCHSNER: There is a new disposable needle that I have found quite useful.

DR. BEGLEY: I prefer the Hutchin's needle myself. It is quite expensive but it gets a good piece of tissue. I might add that you can almost tell it is carcinoma when you cut through the tissue on the biopsy. If I can't tell, my nurse certainly can by the way the tissue comes off the needle.

DR. OCHSNER: I might mention that with any needle that you get, you have to remember that when you use it several times, the blades can bend in the hard tissue and you can get squeezing of tissue. This is a constant problem with all of these instruments.

DR. BEGLEY: I might mention that only a positive biopsy is of help. If you have a negative biopsy for carcinoma, you don't know whether you missed the lesion or whether it really is not there.

DR. GIEBINK: Do you do this before you do a transurethral resection?

DR. BEGLEY: No, we do this to diagnose carcinoma. Actually, a transurethral resection is the worst way to make a diagnosis of carcinoma of the prostate since carcinoma is usually in the peripheral and posterior parts of the gland. This

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is fortunate because it makes the disease easy to diagnose by rectal examination. However, it is difficult to get a diagnosis of carcinoma from transurethral resection because you are getting periurethral prostatic tissue. Unless you have a very extensive carcinoma of the prostate, you will miss it with transurethral resection which is the worst method of biopsy for carcinoma of the prostate. Of course, open perineal biopsy is the most accurate method of diagnosis, but this is really a partial perineal prostatectomy. It is not a minor procedure.

I think that we should realize that even with our present methods of biopsy the percentage of patients who have operable carcinoma of the prostate allowing for radical removal is still only about 5%. There has been a study done on Army Officers who have had routine rectal examinations and there the operability rate has been 40%. I think that anybody especially over the age of 50 ought to have routine periodic rectal examinations and any suspicious nodules ought to be biopsied if we are going to find patients at an early operable stage of their disease. DR. BARLOW: Dr. Ochsner, will you give the operative findings?

DR. OCHSNER: When the retroperitoneal space in the area of the kidney was exposed, a large cold abscess was found. About a liter of purulent material was drained and the abscess reached from the diaphragm to the pelvis — a large psoas abscess. Large caseous lymph nodes were encountered. The kidney was difficult to find but was pushed forward in Gerota's fascia. The kidney was not markedly destroyed and there was some question in my mind as to whether to remove it. I thought from the previous x-rays that the kidney was the source of the abscess. The kidney was removed and the abscess drained. Cultures of the kidney and abscess were obtained.

DR. BEGLEY: Was this a purulent or cold abscess then?

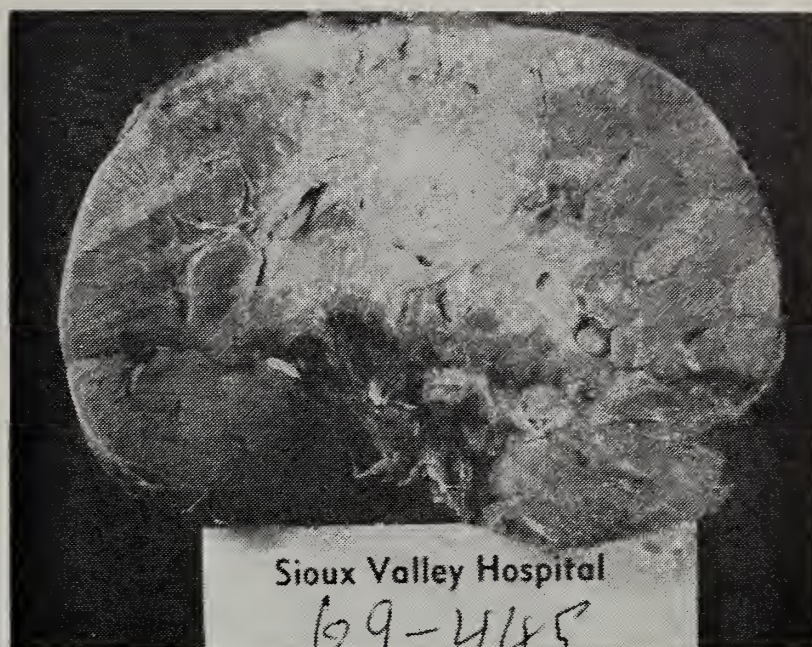
DR. OCHSNER: It was a cold abscess. I thought it was tuberculosis.

DR. BEGLEY: I agree with your removal of the kidney. I think the kidney should be removed in any perinephric abscess since the kidney is the usual source of the infection.

#### **PATHOLOGIC DISCUSSION**

DR. BARLOW: The first slide is a cut section of the resected kidney (Fig. III). There is extensive caseous necrosis extending to the surface of the kidney. The following photomicrographs (Figs. IV, V) show a typical granulomatous response

**Figure III.**



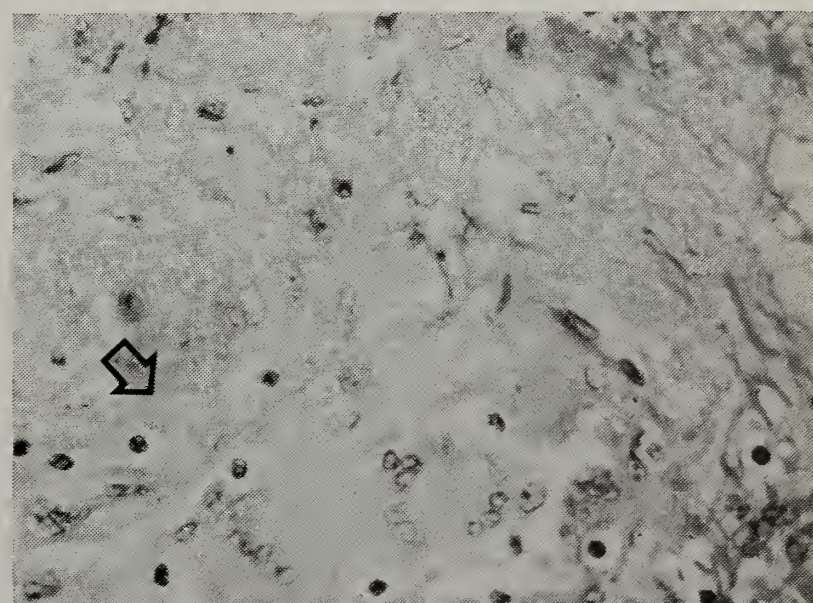
Midportion of kidney is destroyed by multiple caseating granulomas.

**Figure IV.**



Typical caseating granuloma similar to that seen in tuberculosis or fungus disease. In this case, it is due to *brucella suis*.

**Figure V.**



Arrow points to two typical Langhans' giant cells in granuloma due to *brucella*.



identical to that found in tuberculosis. However, as with the previous prostatic biopsy mentioned in the protocol, no acid fast bacilli and no fungi were demonstrated on special stains. Since brucellosis can give a similar granulomatous tissue reaction cultures for brucella as well as mycobacteria and fungi were performed. Organisms grew out in abundance. It is interesting that previous urine and prostate cultures were negative. The organism was identified tentatively as brucella suis by antisera and urease reaction. The diagnosis of brucella suis was confirmed by Mr. Ben Diamond of the Public Health Laboratories in Pierre and by the National Communicable Disease Center in Georgia. It is interesting that brucella suis frequently is associated with localized infection as in this case. As a matter of fact, almost identical cases to the one under discussion have been reported. I cannot understand why we could not grow brucella organisms from the original prostate biopsy, but it is possible that the second biopsy which was cultured did not include typical granulomatous areas. A tip-off to the diagnosis of brucellosis in this case is probably the negative PPD.

DR. ORTMEIER: I challenge that.

DR. BARLOW: I think that unless the patient has had some disease causing tuberculin anergy such as miliary tuberculosis, Hodgkins disease or sarcoidosis, he should have a positive intermediate strength PPD if he has had active tuberculosis. Steroid therapy and certain vaccines can also cause transient tuberculin anergy but the patient had none of these.

DR. ORTMEIER: I have seen patients with severe pulmonary tuberculosis and a negative PPD.

DR. BARLOW: It may take the patient a while to develop the hypersensitivity but he should have it. The tuberculin test can be negative in overwhelming tuberculosis but this was not the case here.

DR. BEGLEY: I think he should have a positive skin test particularly since this is a secondary disease.

DR. OCHSNER: Multiple PPDs of various strengths were tried repeatedly. Also, PPD from other mycobacteria such as PPD-s and PPD-y were tried. They were all negative.

DR. BARLOW: Brucellosis is caused by three related species of bacteria which are aerobic, gram negative coccobacilli — *Brucella Melitensis*, *Brucella abortus* and *Brucella suis*. They are catalase positive and urease positive. Differentiation between these species is difficult but depends on requirement for carbon dioxide,

hydrogen sulfide production, growth in the presence of certain dyes such as thionin and basic fuchsin, and agglutination by monospecific antisera.

Table I.

SPECIES	MAJOR SPECIES OF BRUCELLA					
	CO <sub>2</sub> REQUIREMENT	H <sub>2</sub> S REQUIREMENT	GROWTH		AGGLUTINATION IN MONOSPECIFIC	
			ON THIONIN	ON BASIC FUCHSIN	ABORTUS SERA	MELITENSIS SERA
<i>Br. melitensis</i>	—	—	+	+	—	+
<i>Br. abortus</i>	+	+ 4 days	—	+	+	—
<i>Br. suis</i>	—	++ 5 days	+	—	+	—

Brucellosis was first described clinically on Malta in 1861 and the organism was isolated by Bruce in 1887 on that same Mediterranean Island. There are a number of synonyms for the disease. These include undulant fever, mediterranean gastric remittent fever, Neapolitan fever, Malta fever, Texas fever, Rio Grande fever, and Bang's disease. *Brucella* cause a zoonosis, a disease of animals transmitted to man only incidentally. Although *B. Melitensis* is associated with goats, sheep and reindeer, *B. abortus* with cattle, and *B. suis* with swine and horses, each organism has a wide variety of hosts. In animals genital infection, mastitis and placentitis with abortion are frequent. These forms of disease are rare in the human. There are virulent and avirulent strains of all species.

The human disease is characterized by a granulomatous tissue response which mimics tuberculosis and fungus diseases. The organism leads an intracellular existence which may explain the tissue response as well as the chronicity of some cases of brucellosis since intracellular existence protects the bacterium from antibodies and antibiotics. The organism possesses an endotoxin like many gram negative bacilli. Spink feels that hypersensitivity to the organism plays a large part in the local and systemic manifestations of the disease. In this respect, brucellosis is again similar to tuberculosis.

Clinically the disease is extremely variable. Several types occur. The first is a fulminating acute illness usually with bacteremia and characterized by chills, fever, and prostration. The incubation period can be 8 to 30 days and the onset is abrupt. The second type of onset is insidious with profound weakness, malaise, sweats, low grade fever, headache, backache, pain in the back of the neck and many psychiatric complaints ranging from mild depression to frank psychosis. The disease may also be very mild or cause no symptoms even with bacteremia. The physical signs are few. There may



be fever which is often intermittent (undulant), hepatomegaly or splenomegaly. Pathologically granulomas are present in these organs. The disease may also present a localized form in various organs or tissues. Abscesses of the spleen, liver, kidney, bone, synovitis, meningitis and endocarditis have been described. As in our case, the histology simulates tuberculosis. This localized form is now the most frequent form of the disease.

The laboratory diagnosis of brucellosis can be difficult. The white count is often normal or depressed due to neutropenia. Reactive lymphocytes similar to those of infectious mononucleosis or viral infection are present. The erythrocyte sedimentation rate may or may not be elevated.

Culture of the organism is the only definitive method of diagnosis. Blood culture is often positive in the acute and subacute forms. Multiple blood cultures are often necessary to demonstrate the organism particularly in the subacute form. Enriched media in Castenada bottles are preferable. Unfortunately, even multiple blood cultures may be negative in undulant fever. In the localized forms of the disease, the organisms can only be grown from the abscess or tissue fluid. In this case, urine cultures were negative as were the first cultures of the prostatic biopsy. However, cultures of the kidney revealed the organism.

The other good method for diagnosis of brucellosis is by serologic agglutination technique. The agglutinin is specific but rises in titer may also occur with tularemia and after cholera vaccination. As with most agglutinin techniques, the best way to make a diagnosis is by rise in serial titers, especially an acute phase titer and one several weeks later. This is frequently not possible with the subacute or chronic variety since the patient does not present in the acute phase. Prozone phenomenon are common in brucellosis. A significant titer is usually one of 1:160 or above. The rapid slide technique is a good screening test but should be confirmed by tube dilutions. In the localized form of the disease, as in this case, the serologic agglutination test is often unfortunately negative.

An often talked about phenomenon is the presence of blocking antibodies. These were not present in this case; but, as suggested by the name, can inhibit agglutination. They are particularly common in chronic localized brucellosis as in this case. They can be demonstrated by rapid centrifugation or by the coombs technique. They are probably 7s antibodies and are highly indicative of active brucellosis. A recent study

by Reddin et al does show that the 7s type of antibody is very specific for active disease while the 19s is less so. The 19s antibody appears first after infection in man or animals but the 7s goes up later. This is true of immunologic responses to most antigens — the 7s antibody is more indicative of active disease. The determination of whether low titers of antibody is 7s or 19s is therefore particularly useful in two situations. The first is when a patient with brucellosis has been treated and has persistent symptoms. If 7s antibody is present, continuing disease is suggested. The second situation is in patients with symptoms suggestive of brucellosis with low titers of antibody. The presence of 7s suggests active brucellosis. The presence of 19s suggests past infection or nonspecific agglutination.

A brucellergin skin test is available and is of delayed type. It indicates past disease but persists for years. It is useful only for epidemiologic studies and has the added disadvantage that it may stimulate agglutinins.

#### POSTAUTOPSY DISCUSSION

DR. ORTMEIER: Dr. Ochsner, do you think the nephrectomy could have been prevented if the diagnosis had been made earlier and proper antibiotic treatment carried out?

DR. OCHSNER: Possibly, but there was evidence of the abscess for some years.

\*DR. MERSY: Do you need special media for culture of brucella?

DR. BARLOW: Yes, we used trypticase soy on both the prostate and then later on the abscess and kidney. The prostate never grew out organisms. The kidney and abscess showed abundant growth even on fungus media.

DR. BEGLEY: I think it should be mentioned that any time a patient has a chronic infection of the kidney such as this, other organisms frequently cause superinfections and cause further renal deterioration. Also he may have gotten some superinfection secondary to his biopsy.

DR. OCHSNER: Yes, that is possible. At this time his prostate is perfectly normal.

\*\*DR. FELKER: Was there any history of contact with infected animals?

DR. OCHSNER: Yes, in retrospect. He did have infected hogs. He was a man who decided to get out of the city about twenty years ago and live on a farm. Unfortunately, he contracted brucellosis from some infected hogs.

DR. FELKER: What treatment are you using?

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\*\*Internist, Sioux Valley Hospital, Clinical Faculty, School of Medicine, University of South Dakota.



DR. OCHSNER: We have given him a course of tetracycline for two weeks.

DR. FELKER: I think it should be continued for a longer period.

DR. OCHSNER: Yes, right now he is doing very well. Incidentally, when this man was sick, he had severe psychoneurotic symptoms which are characteristic. These have disappeared.

\*DR. KAHLER: You say this man did not have blocking antibodies?

DR. BARLOW: That's right but we ought to repeat it.

DR. KAHLER: Do you do blocking antibodies routinely? Shouldn't he have had some sort of antibody after all of this?

DR. BARLOW: No, blocking antibodies are rare and are usually not indicated unless you really have a strong suspicion of the disease. Even then they are often absent. Rarely are they present with a completely negative slide agglutination test. I do not know why they were not present in this case.

I think it is interesting that since brucellosis is a zoonosis acquired from cattle and pigs, South Dakota is an endemic area. However, this case is the first proved by culture for some time. There were 248 cases reported in the United States in 1967 and 231 cases reported in 1968. California, Georgia, Iowa, North Dakota, Virginia and Texas accounted for 71 per cent of these. Packing house workers were most frequently involved. The most common source of infection was swine and cattle was next. Infection secondary to dairy products was third. *Brucella suis* was the most common isolate (48 per cent) as compared to *Brucella abortus* (17 per cent). This is a reversal of the trend noted by Spink who found *Brucella abortus* from cattle much more common than *Brucella suis* from swine. Blood culture was the best method of diagnosis.

DR. KAHLER: A lot of cases are diagnosed by serology and not reported. These patients get better on treatment.

### FINAL ANATOMIC DIAGNOSIS

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### ANNOUNCEMENT

On November 20-22, 1969, Sioux Valley Hospital will sponsor a seminar in Newer Concepts in Newborn Care at Gilbert Science Auditorium at Augustana College. Guest Speakers will be Dr. Carlos Mendez-Bauer, Associate Professor of Obstetrics, University of Minnesota and Dr. Louis Gluck, Professor of Pediatrics, School of Medicine, University of California. Fetal monitoring and the handling of acute pediatric emergencies as well as the critically ill newborn will be covered.

### HOSPITALS MAY SPECIALIZE MORE

More specialized hospitals may be on the medical institutions horizon. Hospitals are sure to follow the road to specialization, according to Dr. Robert F. Rushmer, president of the Biomedical Engineering Society. Dr. Rushmer predicts that within five years there will be far fewer institutions giving all types of medical care because hospitals can lower costs by specializing in just one type of service.



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### IN BRIEF

**Contraindications:** History of sensitivity or severe intolerance to aspirin, meprobamate or ethoheptazine citrate.

**Warnings:** **USE IN PREGNANCY:** Safety for use during pregnancy or lactation has not been established; therefore, it should be used in pregnant patients or women of child-bearing age only when the physician judges its use essential to the patient's welfare.

**Precautions:** Keep out of reach of children. Not recommended for patients 12 years old or less. Carefully supervise dose and amounts prescribed, especially for patients prone to overdose themselves. Excessive prolonged use of meprobamate in susceptible persons—as alcoholics, ex-addicts, severe psychoneurotics—has resulted in dependence or habituation. Withdraw gradually after prolonged excessive dosage to avoid possibly severe withdrawal reactions including epileptiform seizures. Warn patients of possible reduced alcohol tolerance, with resultant slowed reactions and impaired judgment and coordination. If drowsiness, ataxia or visual disturbances (impairment of accommodation and visual acuity) occur, reduce dose. If symptoms persist, patients should not operate machinery or drive. After meprobamate overdose, prompt sleep, reduction of blood pressure, pulse and respiratory rates to basal levels, and hyperventilation are reported. Give cautiously and in small amounts to patients with suicidal tendencies. Treat attempted suicide (has resulted in coma, shock, vasomotor and respiratory collapse and anuria) with gastric lavage and appropriate symptomatic therapy (CNS stimulants and pressor amines as indicated). Two instances of accidental or intentional significant overdosage with ethoheptazine and aspirin have been reported. These were accompanied by CNS depression (drowsiness and lightheadedness) but resulted in uneventful recovery. On basis of pharmacologic data, CNS stimulation could

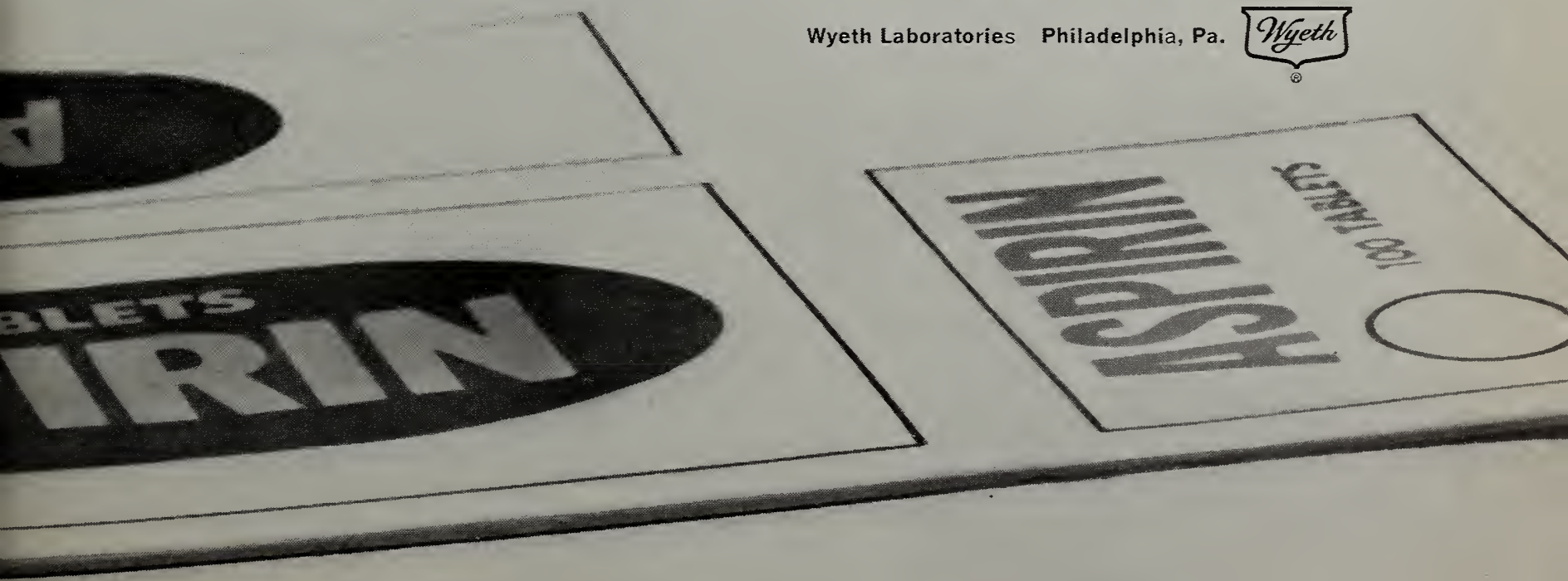
be anticipated, with nausea, vomiting and salicylate intoxication (requires induced vomiting or gastric lavage, specific parenteral electrolyte therapy for ketoacidosis and dehydration, and observation for hypoprothrombinemic hemorrhage [usually requires whole blood transfusions]).

**Adverse Reactions:** Ethoheptazine and aspirin may cause nausea with or without vomiting and epigastric distress in a small percentage of patients. Dizziness is rare at recommended dosage. Meprobamate may cause drowsiness, ataxia and rarely allergic or idiosyncratic reactions. These reactions, sometimes severe, can develop in patients receiving only 1 to 4 doses. Such patients may have had no previous contact with meprobamate and may or may not have an allergic history. Mild reactions are characterized by urticarial or erythematous maculopapular rash. Acute nonthrombocytopenic purpura with cutaneous petechiae, ecchymoses, peripheral edema and fever have been reported. If allergic reaction occurs, discontinue meprobamate; do not reinstitute. Severe reactions, observed very rarely, include fever, fainting spells, angioneurotic edema, bronchial spasms, hypotensive crises (1 fatal case), anaphylaxis, stomatitis and proctitis (1 case) and hyperthermia. These cases should be treated symptomatically including, when indicated, such medication as epinephrine, antihistamine and possibly hydrocortisone. A few cases of leukopenia, usually transient, have been reported on continuous use. Rarely, aplastic anemia (1 fatal case), thrombocytopenic purpura, agranulocytosis, and hemolytic anemia have been reported, almost always in presence of known toxic agents.

**Overdosage:** See precautions section for management of overdosage.

**Composition:** 150 mg. meprobamate, 75 mg. ethoheptazine citrate and 250 mg. aspirin per tablet.

Wyeth Laboratories Philadelphia, Pa.







# 20 Years Ago

## ... IN THE JOURNAL

TWENTY YEARS AGO IN THE SOUTH DAKOTA JOURNAL OF  
MEDICINE AND PHARMACY — OCTOBER, 1949

### GLEANINGS

Three quarters of all babies born last year will live to the age of 60 and one half will be alive at the age of 72 even if there is no further improvement in mortality.

\* \* \*

### THANK YOUR SENATOR

By a vote of 60 to 32, the Senate rejected Reorganization Bill No. 1 which would have created a welfare department, thereby consolidating federal health, education and welfare activities, under the jurisdiction of Oscar Ewing, Federal Security Administrator.

The medical profession contends that the plan would lead to socialized medicine in the United States, by virtue of putting Health under a Welfare Department, giving added power to Mr. Ewing. The profession owes a debt of gratitude to our loyal senators who fought and prevented passage of this bill: 37 Republican and 23 Democrats (mostly southern).

Dr. Joseph Lawrence, the A.M.A. director in Washington, suggests that you write a cordial letter of thanks to your senator — just as there was a flood of requests and petitions of opposition.

So write Senators Chan Gurney and Karl Mundt — both voted "No."

W. H. Saxton, M.D.  
President

\* \* \*

### Dr. Lyle Hare Named "Doctor of the Year"

Dr. Lyle Hare, Spearfish physician, has for the second time in as many years been named South Dakota's General Practitioner of the Year. The

honor was voted by the Council of the South Dakota State Medical Association at its Fall Council Meeting held in Huron.

\* \* \*

### NEWS FLASHES

AT ABERDEEN almost forty members and guests of the Aberdeen District Medical Society were present at the dinner meeting held in the Sherman Hotel banquet room Wednesday evening, September 28th. Dr. William Saxton, President of the Association made his official visit to the Aberdeen Society.

\* \* \*

### PRESHO HONORS DOCTOR NEWMAN

A banquet honoring pioneer Dr. Fred Newman was attended by 225 guests at Presho late in September. Dr. Newman has been in active practice in Presho for 44 years during which time he has delivered an estimated 4,000 babies.

### MEDICAL SCHOOL AFFAIRS COMMITTEE

September 17, 1949

Meeting called to order at 4:30 p.m. by Chairman Donald Slaughter. Members Pankow, Williams, Saxton, Brown, McVay and Executive Secretary Foster were present.

A discussion was held on the proposed incorporation of the endowment organization.

Dr. Pankow brought up the subject of procurement of dogs for the University Medical School.

Dr. Slaughter announced that representatives of the AAMC and The AMA will make an official inspection and survey of the Medical School on September 28, 29 and 30.

Chairman of the committee on Medical School Affairs respectfully requests the Council of the State Medical Association to designate the committee on medical school affairs as an advisory board to the administration of the medical school relative to matters pertaining thereto.

Meeting adjourned at 6:30 p.m.

Second session Sunday morning was final discussion of the proposed corporation with the Association's attorney Karl Goldsmith.



## *Ask Blue Shield*

### Physicians Help Blue Shield Review Claims

*By Jean A. Borger  
Communications Division*

*National Association of Blue Shield Plans*

Physicians and Blue Shield pioneered the development of utilization review programs.

Currently, there are increasing references to utilization review in the Medicare law and elsewhere. A lot of people seem to think that the government invented the procedure as a method of cost control. This is simply not true.

Utilization review was actually originated by physicians to improve the quality of medical care and to make the best use of facilities such as hospital beds.

For many years, the American Medical Association has endorsed utilization review. Recently, the AMA has proposed a national effort to stimulate physician activities in this area further as a means of strengthening local professional review committees, of expanding public awareness of medicine's concern about the quality and cost of care, of encouraging broader health coverage, and of retaining professional control of the review process.

As James D. Knebel, assistant executive vice president, National Association of Blue Shield Plans, said last fall at a medical meeting, "Blue Shield's view of utilization review is not very different from the physician's. We see it as a process of identifying and discouraging, through education, practices which increase the cost of medical care without compensating contributions to its quality."

He went on to say that Blue Shield contracts "to pay, in whole or in part, for the best quality of care free choice of physician can provide our subscriber. We expect to pay claims on that basis. We do not expect to pay — and charge back to the community — for services which do not contribute to quality care."

Blue Shield relies upon the medical community to determine whether standards of good medical practice are being met. In a spirit of co-operation, Blue Shield Plans work closely with local medical societies' professional review committees.

Utilization review has been a membership requirement of the NABSP for some time. The standard reads: "A Plan shall submit evidence that its practices provide for utilization review and control designed to safeguard the interests of all persons served by the Plan . . . ."

Over-utilization quite obviously results in higher costs, or reduced benefits, or shortages of manpower and facilities, any of which would work to the detriment of the patient and the physician. Rather than an infringement upon professional freedom, utilization review is an exercise of professional responsibility to preserve freedom.

A Blue Shield utilization review program has three focal points: patient education, physician education, and an active, continuing review of claims. These are meant to prevent, or identify and correct, over-utilization so that coverage of quality care is available at the lowest possible cost.

Blue Shield tries to get patients to realize that over-utilization wastes precious health care dollars and that poor utilization can have an adverse effect on the quality of health care itself by creating delay and overcrowding of institutions.

On the other hand, the individual physician exerts the primary influence on the way that the health care dollar is spent. The average physician, we know, consistently strives to do what is best for his patients.

That is why Blue Shield enlists the support of medical society review committees, wherever possible, to study unusual cases submitted by the Plan and to make recommendations for action concerning these cases. These physician committees may also consider the quality and patterns of physicians' care.

Blue Shield's utilization review process takes several forms. For instance, Blue Shield's information for various diagnoses includes statistics on such things as average length of stay. A claim may be reviewed when the length of stay has reached that period of time, and the physician will be asked to confirm the need for a longer stay.

In such a situation, Blue Shield's purpose is not to require physicians or patients to conform to averages, nor is it to deny benefits to its subscribers. Rather, it is to provide yardsticks against which to measure whether a case needs to be reviewed more fully.

Another method of reviewing in-hospital services involves the use of a computer to identify patterns of service, such as a physician's laboratory and X-ray utilization. Physicians whose patterns of care seem to be significantly different from those of their fellow physicians may be reviewed to determine the reasons for these differences.



To illustrate this process, a Blue Shield Plan's statistical department recently found that a suburban general practitioner had ordered a particular lab procedure 204 times in one year, while several thousand other physicians in the same state had ordered it a total of 165 times. Blue Shield submitted the matter to a committee of physicians, agreeing to abide by its decision. If the expenditures were deemed necessary, Blue Shield agreed to pay for them. If they were not, the professional review committee would discuss its findings with the physician involved.

The same process is applied to claims for home and office services. If a pattern indicates abnormally high utilization, Blue Shield may feel the pattern should be reviewed by a committee of professional peers.

Blue Shield and medicine are improving their systems of utilization review all the time. NABSP is now in the process of revising utilization review program guidelines to take account of the most recent technology. Blue Shield Plans may follow these guidelines to improve their local utilization review programs.

(Continued from Page 33)

of the patient. Fee splitting violates the patient's trust that his physician will not exploit his dependence upon him and invites physicians to place the desire for profit above the opportunity to render appropriate medical service.

Billing procedures which tend to induce physician to split fees are unethical. Combined billing by physicians may jeopardize the doctor-patient relationship by limiting the opportunity for understanding of the financial arrangement between the patient and each physician. It may provide opportunity for excessive fees and may interfere with free choice of consultants, which is contrary to the highest standards of medical care.

(Continued from Page 34)

been started several hours or more before the specimen is taken, the likelihood of obtaining a positive result is greatly minimized. It is helpful for the laboratory to be informed as to the antibiotic used.

It should be understood that most of the organisms that reside in or on the body have at one time or another been found to cause disease and have been isolated from the blood. These are the same organisms that occasionally occur as contaminants. Therefore, the correlation of the blood culture report with the clinical progress of the patient is of great importance.

#### TIME CHART

How do you spend your time? Some wag has come up with the following figures showing how the average person spends his lifetime: subsistence — 45.8%; free time — 34.8%; commuting — 3.8%, and work — 15.6%.

The ANNUAL POSTGRADUATE ASSEMBLY OF THE OMAHA MID-WEST CLINICAL SOCIETY WILL BE HELD IN OMAHA, NOVEMBER 3, 4, and 5, 1969. We are proud to report that the Assembly is approved for AAGP Credit, and also approved by the AMA for postgraduate education. For further information please contact the

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## WHERE WILL IT END?

Paul B. Jarrett, M.D.

In Michigan, an appellate tribunal reversed a lower court which prohibited the plaintiff from using the defendant doctor as an expert witness **against** himself. The court said that, "a civil defendant has no protection against subjecting himself to liability. If his testimony will provide facts which will aid the court in arriving at a just decision, he has the duty to testify. Any loss to the supporting aspect of the adversary proceedings would be outweighed by the benefit to the judicial system." The courts therefore make quite a distinction between a murderer or rapist and a physician on trial for malpractice. The criminal is prohibited from testifying against himself.

The time-worn and flimsy excuse for liberalizing rules of evidence and new methods for proving malpractice is the "conspiracy of silence." This seems to mean that if a physician reviews the evidence and doesn't find a departure from the standard of care and cannot therefore testify that malpractice existed, he is a "conspirator" against the patient who is praying for an award. It simply is not true that every law suit against a doctor resulted from malpractice. If a physician has done nothing wrong, why should the plaintiff's attorneys become so irate because other physicians refuse to testify that he has?

There has been no dearth of suits against doctors in recent years, and every case has produced physicians who testified in behalf of the plaintiff. Where is the conspiracy of silence?

The "locality rule" has virtually been eliminated by the courts. In the past, the plaintiff had to establish that the defendant physician de-

parted from the standard of practice in the community in which the doctor practiced. The theory now imposed is that because of modern transportation, communication, text books, T.V. medical education, postgraduate courses, medical literature and meetings, even the "similar community" ruling is a thing of the past. A small community without a resident radiologist, a pathologist who visits twice a week, no intensive care unit, no anesthesiologist, (perhaps a colleague who does the best he can in anesthesia in emergencies), no coronary care unit, no respiratory care unit, no interns or residents, no facilities for blood gases, no cardiologist, internist, pediatrician, allergist and so on, certainly does not give the small town doctor the same resources or ability to handle difficult and serious cases. It isn't the "wives" who are driving the doctors out of the small towns. It is the courts who hold the county practitioner now to the same standard of excellence as the physicians in the large centers with unlimited consultative and other facilities.

This and the doctrine of *res ipsa loquitur*, uninformed consent, recovery for mental suffering, the statute of limitations running from the time of discovery and some more permissive rulings, are in the opinion of many, as ridiculous as the recent ruling that unions have a vested interest in limiting production and it is therefore proper to fine union members for exceeding their quota.

Many professional liability carriers have withdrawn from the malpractice field. Some insurance companies will not write policies covering physicians who do any operative procedures. As a recent medical magazine article pointed out,



a doctor makes thousands of life and death decisions in the course of his professional lifetime, yet if he makes one wrong decision, he may lose all he has worked a lifetime to acquire plus his professional reputation, and be unable to obtain liability insurance thereafter.

The physician shortage becomes more and more acute. Even so there is talk of re-licensing examinations at three year intervals and the training of sub-doctors. Who will accept the legal responsibility for these physician-aides? Certainly the number of M.D.s will be reduced by relicensing, and early retirement because of the inability to obtain malpractice insurance or excessive premiums. Many excellent surgical assistants are not helping on cases they do not originate because this puts them in the category four classification of a surgical specialist with current premiums of \$1280.00 per year, and no end to the premium rise in sight.

I have heard, but have not confirmed the statement that plastic surgeons in Florida cannot obtain malpractice insurance at any price. Some physicians who have had claims against them are rated up to above \$4,000.00 a year in premiums, and you are familiar with the mass cancellations of malpractice policies in Utah and

Alaska. Midwest Mutual cancelled all of their policy holders as of February 23rd. Aetna is no longer writing surgical specialists, and there is no doubt whatsoever about the courts practicing medicine. The high cost of medical care is greatly contributed to by the need for the physician to protect himself. It is questionable whether this makes for a higher standard of practice.

In Canada and Britain it is both unethical and illegal for a lawyer to accept a case on a contingency basis, and they have very few "nuisance" suits. Forty percent of a recent award for \$1,500,000.00 is a pretty hefty fee for a few weeks work. What do you get for saving a life? What became of making the plaintiff pay court costs if he loses a suit? Recently a malpractice action in Flagstaff took five weeks in trial. What did this cost the taxpayers? How much important business was delayed as a result of the interminable presentation of the plaintiff's lawyer in a case that in many opinions should never have been permitted to come to court?

Will the day come when a doctor will be forced to say, "I'd like to help you, but I just can't take the risk!"

Where will it all end?

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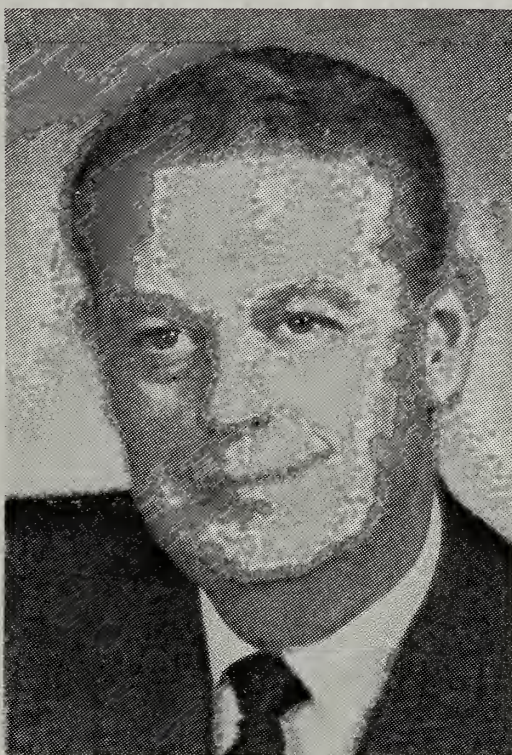
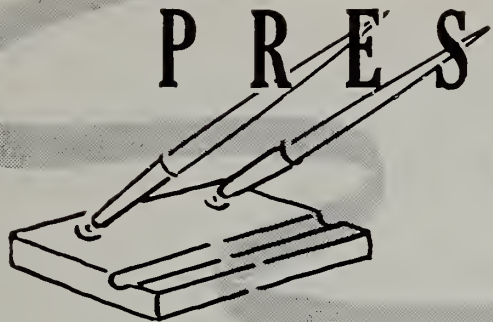
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# P R E S I D E N T ' S P A G E



The South Dakota Medical School Endowment Association needs our support at this time more than it ever has in the past. It was reported at the AMA Meeting in New York (July 1969), that approximately 300 of our medical students throughout the nation would be in trouble this year obtaining necessary financing for their continued education. Student loan programs have been cut back materially by the Federal Government. The tight credit market is making it exceedingly difficult for any student to get loans under the usual loan programs.

The Student American Medical Association has been acutely aware of this situation and has asked for help from all practicing physicians.

The South Dakota Medical School Endowment Association was started in 1949. Since that time the assets have grown to over \$115,000.00. Over 150 loans have been made and many of these loans have now been repaid. At the present time, we have loaned out \$61,000.00 in direct loans to students at the University of South Dakota and we have provided another \$9,000.00 for the Federal Matching Loan Program.

Medical education needs support from physicians and all others interested in maintaining local control of our educational institutions. The Endowment Association is the means for contributions, memorial gifts and bequests to be channeled directly to our Medical School. We need your help to spread information in regard to the Endowment Association and above all we need contributions. Let's all continue to help our South Dakota students fulfill their educational aspirations so that they may return to our state to practice in the future.

R. H. Quinn, M.D.  
President



# The Apprehensive Hypertensive

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other adverse reactions which have occurred in the adult. Increased respiratory secretions, nasal congestion, cyanosis and anorexia may occur in infants born to reserpine-treated mothers. **Precautions:** Antihypertensive therapy with this drug should always be initiated cautiously in postsympathectomy patients and in patients receiving ganglionic blocking agents, other potent antihypertensive drugs, or curare. Reduce dosage of concomitant antihypertensive agents by at least one-half. To avoid hypotension during surgery, discontinue therapy with this agent two weeks prior to elective surgical procedures. In emergency surgery, use, if needed, anticholinergic or adrenergic drugs or other supportive measures as indicated. Because of the possibility of progression of renal damage, periodic kidney function tests are indicated. Discontinue if the BUN rises or liver dysfunction is aggravated. Hepatic coma may be precipitated. Electrolyte imbalance, sodium and/or potassium depletion may occur. If potassium depletion should occur during therapy, the drug should be discontinued and potassium supplements given, provided the patient does not have marked oliguria. Take particular care in cirrhosis or severe ischemic heart disease and in patients receiving



*This is your*

# MEDICAL ASSOCIATION

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News Notes • Changes • Births • News

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## Pop's Proverb

Grandparents, after a visit by grandchildren, realize the divine wisdom of the Grand Architect that after a certain age women can't have babies.

**R. H. Quinn, M.D.**, Sioux Falls, has been named chairman of the Advisory Group for the Regional Medical Program, and **J. A. Muggly, M.D.**, Madison, has been named vice-chairman of the Executive Committee.

\* \* \*

Governor Farrar announced the appointment of **R. J. Bareis, M.D.**, Rapid City, to a two year term on the State Board of Examiners of Nursing Home Administrators.

\* \* \*

**Richard Friess, M.D.**, who practiced briefly in Sioux Falls prior to entering the public health service, has joined the Day County Medical Center in Webster.

**G. Robert Bell, M.D.**, De Smet, spent the month of August as a volunteer with AMDOC at Vieux Fort, St. Lucia Island, West Indies.

\* \* \*

**R. C. Jahraus, M.D.**, Pierre, was master of ceremonies at the graduation of the Pierre School of Practical Nursing.

South Dakota State University presented a family life workshop for teachers, ministers, social workers and other interested groups. **Bruce Lushbough, M.D.**, Brookings, led the discussion and answered questions following the film "How Life Begins."

\* \* \*

The Veterans Administration has named **Albert L. Olsen, M.D.** as director of the Fort Meade V.A. Hospital effective October 5. Dr. Olsen, who is from Topeka, received his M.D. degree in 1931 from Washington University Medical School.

\* \* \*

**John S. Tschetter, M.D.**, Huron, was recently married to Mrs. Vivian Hook of Escondido, California.

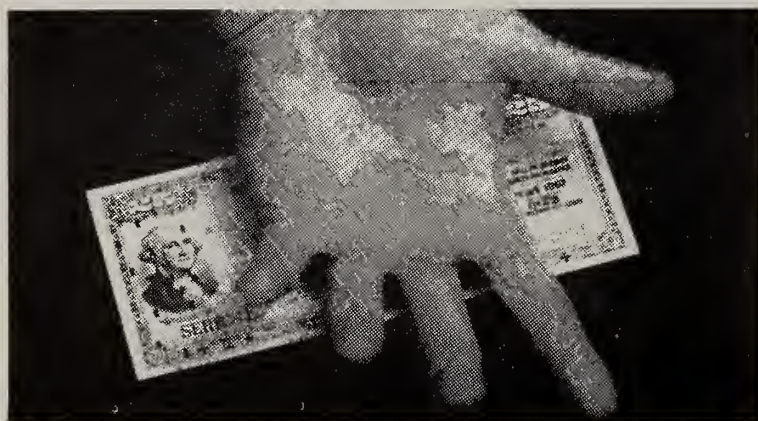
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The McGreevy Clinic has announced the association of **Gregory Naughton, M.D.** in the practice of internal medicine, and **Patrick McGreevy, M.D.** in the practice of surgery.

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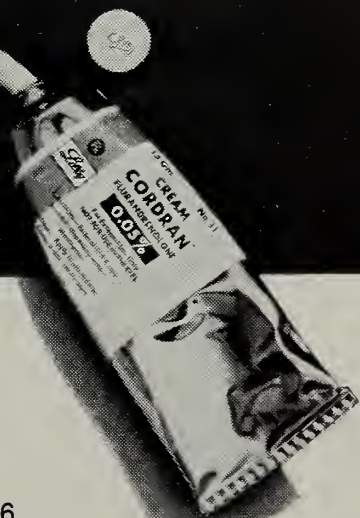
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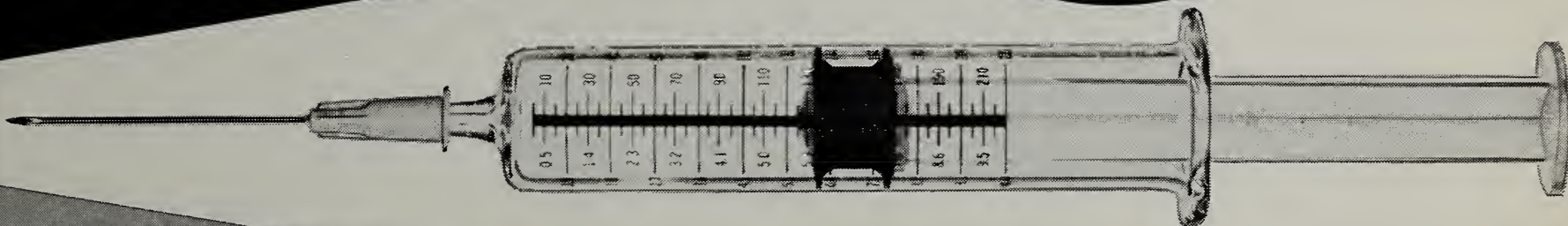


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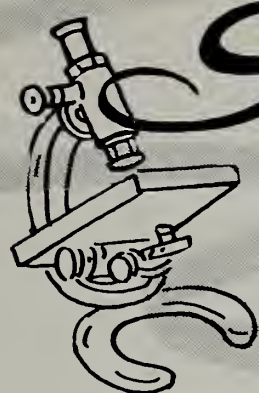
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# Scientific P A P E R

## THE IMMEDIATE MANAGEMENT OF MAXILLO-FACIAL INJURIES

By

Henry Tahl, D.D.S., M.D.\*

C. T. Yarrington, Jr., M.D.\*

The proper immediate management of patients suffering Maxillo-Facial and Laryngeal injuries or fractures should be understood by any physician involved in treating the trauma patient. In gaining an understanding of these difficult problems, it is necessary to consider both the method of injury, the peculiar anatomical and physiological features of the area involved and the immediate measures necessary to maintain the patient until more definitive treatment can be applied. The purpose of this article is to form guide lines for the general physician and surgeon in the early management of the acute injury.

The head and neck are anatomically, physiologically and functionally designed to withstand many forces without incurring severe injury. With the exception of the calvarium and the petrous pyramid the individual bones can easily be fractured. The delicate framework of the facial bones withstands forces by splitting the vectors. As an example, the first Maxillary Molar can withstand 250 pounds of force when we bite into a cherry stone. The forces are distributed along the Zygoma, Maxillary Tuberosity and Palate. Likewise we know the vertex of the skull is able to withstand heavy blows capable of causing severe intracranial injury without

evidence of fracture. The larynx is capable of sustaining trauma without gross effect due to the inherent resiliency of cartilage.

However, since the advent of automobiles and other high speed vehicles, the human head and neck is no longer subjected to physiologic forces that can be dissipated, but to the extreme forces of a missile that suddenly decelerates or more infrequently accelerates. Further analysis of the vectors of force to the anterior head and neck demonstrate that the areas injured are designated by the amount of flexion or extension of the head on the neck. Therefore, a classification is introduced which considers the method of injury, the area injured, and the resulting injuries to be suspected.

**Class I: Fronto Nasal Injuries.** The head is minimally extended upon the neck and the velocity of the impact is usually minimal or the rigidity of the musculature is maximal. The primary fracture is that of the nose and frontal sinus.

**Class II: Zygomatico Orbital Injuries.** The head is moderately turned to one side and the primary fracture site is that of the Zygomatic Arch, Orbital Rim and Malar Complex.

**Class III: Maxillo Occlusal Injuries.** The head is moderately extended either by inertia or the rigidity of the nuchal extensors. The primary injury is to the mid-face resulting in the "Dish

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Face" and or loss of occlusal relation between the teeth. This group includes the Guerine, various Le Forte and Mandibular fractures.

**Class IV: Laryngo Tracheal Injuries.** The head is maximally extended and the primary impact is below the symphysis menti centered between the hyoid bone and the 4th or 5th tracheal rings. The force necessary to fracture the pliable hyaline cartilages is usually of great magnitude and cervical spine injury not infrequent.

**Class V: Cerebrospinal Injuries.** In this class the force is great enough to cause cerebral damage and cervical spine injury which is secondary to the injured anterior region, but may require primary therapy.

This classification is an implication of an overall scheme of management, and attention may be directed to the appropriate anatomic region which may be obscured by edema, ecchymosis or injuries to other parts of the body. It should also be noted that a skull series X-ray may and usually does miss Zygomatic arch fractures, mandibular fractures and others. Likewise, a cervical spine X-ray may not begin to demonstrate laryngeal or tracheal injuries. After bleeding is controlled, an airway established and other injuries are assessed and stabilized maxillo facial and laryngeal fractures should be cared for without delay. Sufficient callus may form after ten days and cartilage necrosis after 24 hours to add greatly to the ultimate morbidity. The maxillo facial injuries should be treated without delay, and the maxillo facial and laryngological consultant should be among the first to assist in evaluating the patient. Often the prematurely sutured laceration may have to be reopened to adequately treat the bony injury. After proper neurologic evaluation and control of hemorrhage and airway, an adequate maxillo facial and laryngeal examination should be performed.

To fully manage maxillo facial or laryngeal injuries we will first discuss the various classifications. It should also be emphasized that in going from a pure Class I injury to Class IV the mortality and morbidity increases. Secondly, depending on the impact one class may rapidly merge into another. Since the greater number indicates the higher morbidity, we propose that in using this classification the highest applicable number be used.

**Class I: Injuries, Fronto Nasal.** Fractures of the frontal sinus will not be dealt with in the paper, other than to state that deformity and

CNS complications are frequent with inadequate primary care. Treatment is required early.

**Nasal Fractures:** The nasal bones are the keystone of the old Roman arch. The frontal process of the Maxilla is the Voussoir, walls of the Maxillary sinus the abutments, the piriform opening the imposts and the canine area of the Maxilla the piers. In addition to this arch like structure, the external nose is pyramidal in shape. It is exposed and prominent and is subject to trauma. Most nasal fractures are compounded through the mucous membranes, less often through the skin; thus epistaxis is the hallmark of the nasal fracture. If the fracture is untreated nasal obstruction and deformity result. In children a nasal fracture is a prime factor in growth and development. The child with a deformed nose not only has a cosmetic defect but frequently develops a profound personality defect or complex due to this deformity.

Forces causing fracture:

1. Minimal results in a chip fracture.
2. Force of greater magnitude will comminute and impact.
3. Frontal force — both nasal bones behave as one.

We have described the nose as an arch of bones and pyramidal in shape; however in dealing with fractures we must also compare it to a tent where the septum is comparable to the tent pole.

**Types of nasal fractures:** There are combinations of unilateral, bilateral, "Open Book," and telescoping of fragments or impactions.

**Diagnosis:**

1. Inspection — observe deformity, epistaxis, ecchymosis.
2. Palpation — feel for crepitus and tenderness.
3. Pain and respiratory obstruction.
4. X-rays — The Waters view is excellent for outlining the septum and bony pyramid.

A dental occlusal view taken superior to the nasal pyramid (fronto mental view)

The usual lateral nasal views.

All fractures are not seen on X-ray, especially in children.

**Objectives of Treatment:**

1. Restore nasal airway.
2. Correct nasal deformity.
3. Permit normal growth and development in children.



**Surgical Management:** Any wounds are cleansed with PhisoHex and peroxide. Clots in the nasal cavity may be removed by suction and irrigation with normal saline. If an external wound is present it should be debrided. Avoid cartilaginous necrosis by evacuation of any hematomas especially in the nasal septal area. The treatment of skin lacerations will not be discussed in this paper.

**Anesthesia:** Topical and local infiltration similar to Rhinoplasty.

**Closed Reduction** — Most nasal fractures may be reduced with an Asch or Walsham forceps. These forceps are so designed that they will grasp but not crush. The actual mechanics of the reduction with these forceps will not be discussed in this paper. In the case we have pictured, due to comminution of the fragments, #28 gauge stainless steel wire was threaded from right to left and then left to right over two dental cotton rolls. This permits stabilization of the fragments, and with the aid of nasal packs we can usually achieve cosmesis and a good airway.

**Open Reduction:** Some rhinologists argue that fractured nasal bones have multiple serrations and planes which make perfect closed reduction impossible. In children many rhinologists state that open reduction should be the method of choice. Technic for open reduction of nasal fractures is very comparable to rhinoseptoplasty technics and is not applicable to this paper.

#### **Complications of Nasal Fractures:**

1. Nasal deformity.
2. Interference with pulmonary compliance.
3. Septal perforations due to cartilage necrosis.
4. Nasal obstruction.
5. Altered growth and developmental patterns.
6. Personality and mental changes.

#### **Class II: Injuries. Zygomatico Orbital.**

Eighty percent of the fractures in this group are the simple M type that involve the arch and the Zygomatico Maxillary suture. This type fracture will not have any orbital signs, and may not have any immediate deformity due to edema and ecchymosis. A good deal of the literature states that most of these patients will be unable to open their mouths; however, this is only true in about one third of the cases.

Twenty percent of this group will have some eye signs early or late depending on the compensating edema and muscle derangement. This sub-group is divided into those involving the orbital rim and Zygoma, and the blow out fracture of the orbital floor. Since the Masseter

muscle arises from the Zygoma a tripod fracture of the rim will irritate the Masseter sufficiently to luxate the malar complex resulting in dramatic orbital deformities.

During a blow out fracture the periorbital is torn, and fat enters the antrum resulting in dropping of the globe. Furthermore the inferior eye muscles become trapped and injured. Therefore prior to discussing treatment two obvious defects must be recognized; first correction of the bony supporting structures, second correction of the eye motor mechanism.

#### **Diagnosis of Zygomatico Orbital Fractures**

- A. Pure Zygomatic Arch Fracture — Usually The M Type
  1. Inability to open mouth in 30% of cases.
  2. Flattening of face anterior to tragus by inspection.
  3. Swelling.
  4. Palpation anterior to tragus reveals depression.
  5. X-ray — Zygomatic view or Water's view will demonstrate fracture.
- B. Malar Fracture — Including Orbital Rim and Tripod Fractures
  1. Swelling and Ecchymosis.
  2. Prominence of cheek.
  3. Tenderness of Zygomatico frontal suture region.
  4. Facial asymmetry.
  5. Flattening of the face in region of outer canthus.
  6. X-rays; — Water's view and orbital laminograms.
  7. Orbital unevenness (stepping).
- C. "Blow Out" Fracture
  1. Anesthesia in infraorbital region.
  2. Inability to move affected eye down and medially (inferior rectus); and/or upward and laterally (superior oblique).
  3. Enophthalmous.
  4. Swelling and ecchymosis of eye.
  5. Diplopia where muscles are trapped.
  6. X-rays — Water's view — cloudy antrum and "tear drop." Laminograms to demonstrate site of fracture.

#### **Objectives of Treatment**

1. Correct facial deformity.
2. Correct functional aberrations.
  - A. Inability to move mandible physiologically
  - B. Ocular defects such as entrapped musculature, enophthalmous and diplopia.
3. Prevent osteitis and osteomyelitis.
4. Relieve and prevent neurologic deficits.



5. Reduce fracture prior to callus.
6. If possible reduce fracture prior to onset of edema; however edema per se should be considered an expected complication of trauma, but not a deterrent to surgery.
7. Reestablish normal growth and developmental patterns in children.
8. Avoid iatrogenic problems of improperly planned treatment.

#### Treatment of Zygomatico Orbital Injuries

The treatment of this group of injuries must also be broken down to its individual parts, and each segment must be individually considered in order to fully treat the entire complex.

1. Zygomatic arch fractures. In our cases we prefer a modified Gillies approach. Furthermore the literature describes several procedures that we have found no reason to use or consider; such as the towel clip method over the arch and the Givo-Buccal approach from the oral cavity. Our approach employs a vertical incision rather than horizontal or  $30^\circ$  to the Zygomatic arch, and centered over the arch at the level of the Helix. Rather than use a typical Gillies instrument a urethral sound is excellent to iron out the fragments and depressed arch and in many cases reduce the malar and tripod fracture.

2. The treatment of malar tripod fractures does not differ essentially from standard techniques of making several small incisions over the fractured periorbital region. In many cases a small incision over the Zygomaticofrontal suture is adequate and after exposure of the fracture a 24 gauge wire suture is used. If this is not adequate a second incision is made approximately 4mm below and parallel to the palpebral fissure which is just below the tarsal plate. The periosteum is incised at the orbital septum taking care not to herniate orbital fat. After exposure of the fracture, it is sutured with 14 gauge stainless wire. If the orbital floor is involved, it is treated like the "blow out" fracture.

3. Blow out fractures are treated by the orbital approach primarily and we have been inserting alloplastic (Cranioplast) material or silastic in the orbital floor. We further prefer that forced suction tests and checking of the extrinsic ocular musculature and function be performed by an ophthalmologist; thus the patient receives the benefit of combined service. Only rarely have we found it necessary to do a Caldwell-Luc procedure in combination with the above approach.

#### Complications of Zygomatico-Orbital Fractures

1. Facial Deformity.
2. Limited Mandibular Movement.
3. Enophthalmous.
4. Diplopia.
5. Ptosis.
6. Neurologic Disturbances Including Blindness.

Class III: Fractures — Maxillo Occlusal Injuries. Since this topic is very broad in scope and will be the topic of a future monograph, it will be dealt with briefly and illustrated with a case study and management.

Case: H. F. a 53 year old white male who was working on an automobile engine suspended on hydraulic lifts. The lifts gave way August 24, 1968 while he was lying underneath. He sustained multiple facial fractures compatible with the Le Forte III and naso orbital ethmoid frontal fractures. The left eye was fixed in the mid position and only could detect strong light. The left side of his face had several deep lacerations both supra-orbital and infra-orbital. The supra-orbital was approximately 7 cm and the infraorbital 10 cm. The Maxilla was movable to intraoral palpation. The mandible was within normal limits.

X-rays confirmed the Le Forte III fracture and a comminution of the naso-fronto-orbito-ethmoid primarily of the left side of the face. The posterior wall of the frontal sinus was fractured and a pneumoencephalocele was present. The left orbital rim was fragmented and infraorbital stepping could be palpated. Under general anesthesia with the cooperation of the ophthalmology department the frontal bone fragments overlying the frontal sinus were repositioned and sutured with wire. The Zygomatico frontal suture area separation was sutured with 24 gauge stainless wire. The Zygomatico Maxillary fractured area was sutured with 24 gauge stainless wire. The ophthalmologist then placed a cranioplast plate along the comminuted orbital floor, after the freedom of the inferior rectus and oblique were checked with forced duction. The anterior ethmoid cells were exenterated and via the fronto ethmoid region and the left nostril a Malecot catheter was brought out through the nose. All soft tissue injuries were then sutured.

He was placed on antibiotics — 6 million units of penicillin immediately and given tetanus toxoid. Then 1,000,000 units of penicillin was given b.i.d.; 500 mg of streptomycin was given



b.i.d. for five days. This was supplemented with ampicillin 500 mg q6h. A cerebrospinal fluid leak subsided in 7 days. He had an uneventful recovery, and sustained minimal facial deformity and loss of sight in his left eye. He was discharged from the hospital September 26, 1968. Other than loss of vision in his left eye, he has been able to return to gainful employment. It is interesting to note that the classical Guerin, Le Forte I, II, and III fractures as a classification are being relegated to medical history, for two reasons. First the typical Le Forte type fractures are practically never found in any of the hospital records reviewed, and secondly if we are to use the lines of Le Forte it is more descriptive to use transverse, pyramidal and craniofacial rather than the numbers of Le Forte. These fractures are at times difficult to evaluate. One places a thumb and index finger in the mouth and it will be noted that a segment of Maxilla and teeth (if present) moves easily in a horizontal plane. Mandibular fractures are frequently recognized by the loss of occlusal relationship and torn mucous membrane. X-rays such as the Water's view will demonstrate fractures of the Maxillary complex. The antra may also be cloudy from extravasated blood or effusion of exudate. A mandibular series is necessary to demonstrate the mandibular fracture. In children it is important to be aware that the mandibular condyle is an essential growth center and must be preserved in this age group. Most or 90% of the mandibular fractures involve the mental foramen and angle area, and are often bilateral. Thus, if a mental foramen fracture is noted it is wise to examine the opposite condyle. In the authors experience one of the most frustrating fractures of the mandible is one of the symphysis. These usually require open reduction. In these cases closed reduction will fail to reduce and immobilize the fracture; since the incisor teeth have a shearing action rather than mortar and pestle stability of the molar and bicuspid teeth. If X-rays fail to fully demonstrate the condyles, one can place a finger in each external auditory meatus and palpate as the patient opens and closes the mouth.

Since occlusion is a very important factor in the immobilization and treatment of these fractures it is essential to have the following available. A roll of 24 and 30 gauge annealed stainless steel wire, arch bars (the Erich bars are most adaptable), a drill (hand drill, Jordan-Day, dental, or Hall type), suitable burns or drill points (usually 3/32 inch in diameter), a wire cutter

and soft dental wax. After the placement of interdental wires, a wire cutter should be placed very close to the patient. If rubber bands are used, the patient should carry a scissor in the event of emesis occurring. A recent innovation is to thread a wire through all the intermaxillary elastics and tape the end to the patient's face. If he should then have an emesis the patient or nurse may pull the wire and thus remove the elastics without delay. Dental wax is an added convenience to the patient as it may be used to cover wire ends and prevent mucosal irritation. If the patient is edentulous, then the artificial dentures or a set of bite blocks made of acrylic may permit immobilization and reduction by circumferential wires. Midfacial fractures that do not involve the teeth are usually less difficult and may be reduced similar to that described for the blow out, malar, and orbital fractures.

In conclusion it should be stressed that Maxillo-Facial fractures should be evaluated early and treated as soon as possible by the physician responsible for this management. Frequently the ophthalmologist is required for aid in the evaluation and treatment of orbital trauma. Occasionally an oral surgeon can be of assistance in the case of injuries involving the teeth and their occlusion. However, team efforts, early treatment, and cooperation should be the prime considerations in the care of these injuries.

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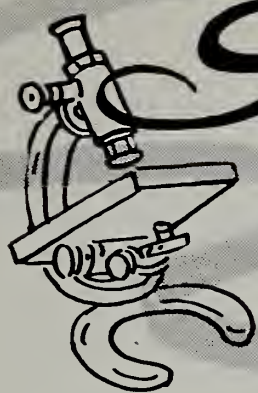
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P A P E R

## PROSTHETIC REPLACEMENT OF THE AORTIC VALVE:\*

### A Current Assessment of Operative Results

By

Andrew G. Morrow, M.D.\*\*

In the adult patient with clinically significant aortic stenosis or aortic regurgitation, the aortic valve is always severely deformed, frequently lacking in substance, and usually the site of dense calcification. In the past, attempts were made to restore function to such valves by debridement, commissurotomy, or other reconstructive procedures, but experience has shown that these operations are ineffective in providing lasting benefit. Thus, when operative treatment becomes necessary in the adult with acquired aortic valve disease, it must be assumed that total replacement of the valve will be necessary.

The Starr-Edwards prosthesis has been most widely utilized for aortic valve replacement, and between February 1963 and September 1967 it was employed in 175 patients undergoing valve replacement at the National Heart Institute. The early and late results of operation in these patients are summarized in the present report.

#### THE PATIENTS

The 175 patients were 16 to 68 years of age (mean 47 yrs.); 136 were men and 39 women. All were distinctly symptomatic; 36 were in

functional Class II (New York Heart Association Criteria), 123 in Class III, and 16 in Class IV. The patients in Class II were all severely limited by episodic angina pectoris and/or syncope. On examination, the usual physical, roentgenographic, and electrocardiographic findings associated with aortic valve disease were present. All patients were studied preoperatively by cardiac catheterization and selective angiography. Pure or predominant aortic stenosis was present in 76 patients, pure or predominant aortic regurgitation in 59 patients, and in 40 patients stenosis and regurgitation were considered of similar severity. Thirteen patients had defective aortic prostheses of other types, and 4 had aneurysms of the ascending aorta which necessitated resection or aneurysmorrhaphy. Excluded from present consideration are other patients in whom aortic valve replacement was accompanied by an operation on the mitral and/or tricuspid valve.

The aortic valve was exposed during total cardiopulmonary bypass conducted during mild (30°C.) general hypothermia. The left coronary artery was perfused. The diseased valve and any residual calcific deposits in the annulus and septum were resected, and a prosthesis of suitable size inserted. The valves were those avail-

\*Prepared by the **South Dakota Heart Association** for this Journal.

\*\*Chief, Clinic of Surgery, National Heart Institute, Bethesda, Maryland 20014.



able at the time, and they had silastic poppets and bare metal struts and orifices (Models 1000 or 1200). In virtually all patients anticoagulation with warfarin was instituted in the early postoperative period and maintained thereafter.

### THE RESULTS

**Immediate Mortality:** Twenty-four patients (14%) died during the hospital admission at which valve replacement was performed. Nine patients died in the operating room, 5 as a result of technical problems related to placing the valve or closing the aorta; 4 other patients could never sustain an effective circulation after bypass, and one of them was found at necropsy to have severe and unrecognized mitral stenosis. Postoperatively, fatal hypotension and low output occurred in 3 patients, possibly because the prosthesis was too large for the aorta. Five patients died of uncontrollable ventricular arrhythmia, and 3 of renal failure. Cerebral hemorrhage, infected aortotomy, pulmonary consolidation, and endocarditis caused one death each.

**Late Mortality:** Thirty-eight of the original 175 patients (22%) have died at intervals of 3 months to 5 years after operation. In 10 patients death was sudden and unexpected, and no anatomic cause was apparent at necropsy. Ten other patients have died as the result of degeneration of the silastic ball. The remaining 18 patients died of various causes including left ventricular failure, arrhythmia, myocardial infarction, endocarditis, and hepatitis.

**Thromboembolism:** Since 1965, all patients with Starr-Edwards valves have been given therapeutic doses of warfarin unless a specific contraindication existed. Twenty-eight of the 113 surviving patients have had a total of 31 cerebral emboli with definite neurologic abnormalities. Twenty-five of the 28 patients recovered without detectable neurologic sequelae; in 2 patients mild residual abnormality persists, and in the other moderate weakness of the arm prevents employment. A number of other patients have described brief episodes of vertigo, paresthesia, or aphasia, but none has ever had a neurologic abnormality on examination. Two patients who died suddenly and unexpectedly were found at necropsy to have coronary artery emboli.

Eight patients have experienced bleeding as the result of warfarin administration, and 2 of them with intracranial bleeding (intracerebral or subdural) died.

**Symptomatic Improvement:** The 113 surviving patients have been followed for periods of

one to 5 years (average 34 mos.), and detailed reassessments have been made in all. Eighty of the 113 survivors (71%) are asymptomatic (Class I), while the remaining 32 experience symptoms only during unusual activity (Class II).

**Hemodynamic Improvement:** Postoperative cardiac catheterization has been performed in 100 patients at an average interval of 7 months postoperatively. A systolic gradient across the prosthesis was usually evident, but the average value at peak systole was only 12 mm. Hg. The left ventricular end-diastolic pressure exceeded 15 mm. Hg. in 66 patients preoperatively; it fell postoperatively in all but 4 of these, and the value was greater than 15 mm. Hg. in only 15 patients postoperatively. The cardiac index was usually normal both before and after operation in patients with aortic stenosis. In two-thirds of those with aortic regurgitation it was abnormally low preoperatively, and normal in all but 3 postoperatively.

### SOME CONCLUSIONS CONCERNING AORTIC VALVE REPLACEMENT

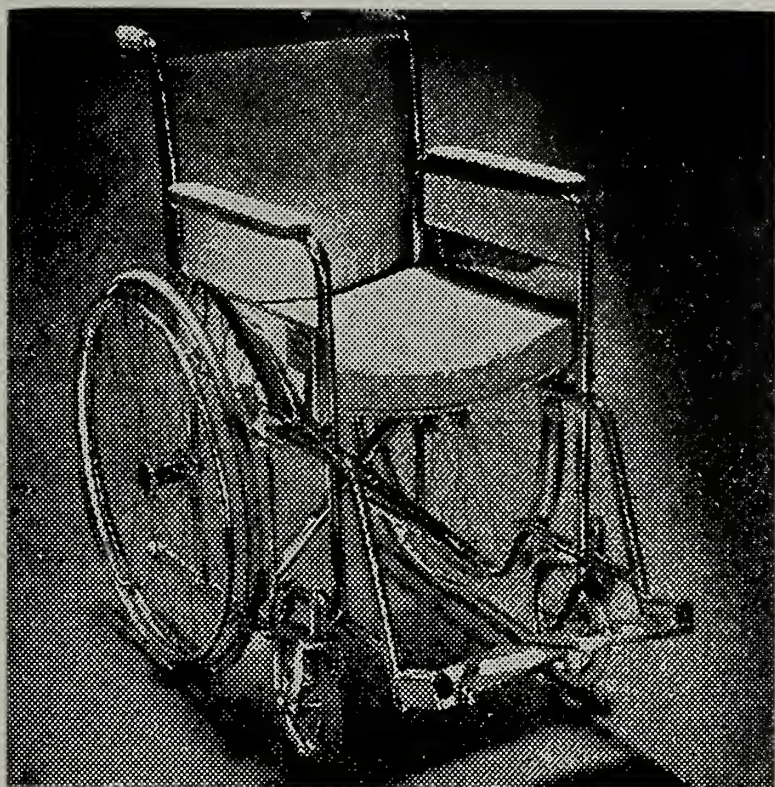
The immediate risk of aortic valve replacement is 10-15%, and a significant number of survivors may be expected to die later of causes directly or indirectly related to the operation or the prosthetic valve. Thus, at this time operation should only be recommended to distinctly symptomatic and severely incapacitated patients, those in whom the risk of early death without operation can reasonably be considered equal to or greater than that associated with valve replacement. Valve replacement is certainly to be avoided under all but extreme circumstances in the child or adolescent. The diagnosis of aortic stenosis and/or aortic regurgitation is readily apparent on clinical examinations, but information concerning the severity of the malformation can only be obtained by appropriate hemodynamic and angiographic studies. Such studies should be applied preoperatively in most patients, to provide assurance that symptoms are entirely or principally attributable to the defective valve, and that improvement can be expected after valve replacement. When severe stenosis or regurgitation is proved to be present in a severely symptomatic patient, operation is always recommended. Certain preoperative findings, such as prior myocardial infarction, probably indicate an increased operative risk, but at this time none constitutes an absolute contraindication to operation.

Patients who survive operation derive gratifying symptomatic improvement, and in most



this is accompanied by a return of the intracardiac pressures to normal or near-normal values.

These attitudes and conclusions concerning aortic valve replacement are based almost entirely on relatively early experiences with Starr-Edwards prostheses. Early mortality can certainly be reduced by more exact intraoperative and postoperative management, and almost two-thirds of the early deaths in this series could now be avoided. Also, valves used since September 1967 have metallic poppets, which should be indestructible, and fabric covering of the orifice and struts should eliminate or greatly reduce the incidence of systemic embolization. With these valves permanent anticoagulation is presently considered unnecessary. When there is sound evidence that modifications of the operation and the prosthesis have reduced the risk of late death or disability, valve replacement can then be recommended to patients early in the course of their disease.



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The program will consist of seven major sessions, one to be held each morning and afternoon (except the afternoon of Tuesday, April 28th). On Tuesday afternoon, April 28th, visits to local Clinics of various sizes will be arranged and members of the Medical Group Management Association of Canada will sponsor "workshops" to provide detailed information on clinic organization and management.

Inquiries are warmly invited and should be addressed to: The First International Congress on Group Medicine, 425 St. Mary Ave., Winnipeg 1, Manitoba, Canada.



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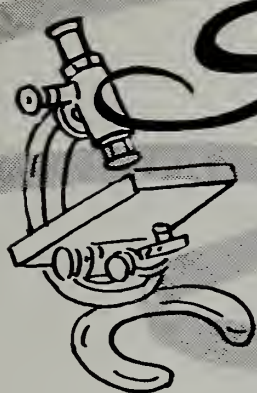
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# Scientific P A P E R

## MASSIVE HEMORRHAGE FROM ESOPHAGEAL VARICES IN EARLY CHILDHOOD

By

D. K. Ohrt, M.D.,\* Donald Kougl, M.D.\*\*  
and Kendall R. Burns, M.D.\*\*\*

Congenital hepatic fibrosis, portal hypertension and esophageal varices associated with polycystic kidneys are an infrequent combination but do constitute a specific clinical entity.<sup>1</sup> Massive upper gastrointestinal hemorrhage in early childhood is an unusual presenting symptom. The youngest child previously reported was four years, seven months of age.<sup>2</sup> Palpable renal masses and the history of polycystic kidney disease in a younger sibling were valuable in arriving at the proper diagnosis in the following case report.

### CASE SUMMARY: R. K. #785470

On March 14, 1969, a three-year 2 month old white female was admitted to Sioux Valley Hospital with melena and hematemesis.

A previous admission in March, 1968, followed an episode of melena of two days duration. Esophagoscopy at that time revealed a slightly exaggerated venous reticulum at the gastroesophageal junction, but this area showed no tendency to bleed on manipulation with the scope. Proctoscopy was normal. An upper G.I. series and barium enema were within normal

limits; however, an esophagram could not be obtained. Laboratory data included hemoglobin 5.4 gm%, red cell count 1.94 million/mm,<sup>3</sup> hct. 18%, platelet count 338,000/mm,<sup>3</sup> prothrombin time 10.5 seconds (control 11.5 seconds). The bleeding ceased after a single whole blood transfusion. The patient was discharged and lost to subsequent followup. According to the parents, there had been no recurrence of bleeding during the interim until the onset of symptoms which resulted in her present admission.

In November 1968, a four-month male sibling was admitted for evaluation of an abdominal mass. His physical examination was normal except for palpable kidneys subsequently proven to be polycystic kidneys. The family history is otherwise non-contributory.

On physical examination she was described as pale and lethargic, 36" in height and weighing 25 lbs. The pulse was 40/minute and blood pressure 150/85 mm/Hg. Head, eyes, ears, nose, throat, cardiorespiratory, and neurological examination were within normal limits. The liver was firm, palpable and non-tender, one fingerbreadth below the right costal margin. The spleen was palpable at the left costal margin. Bilateral masses were palpable in the area of the kidneys. The superficial venous pattern of the upper abdomen was slightly accentuated.

\*Senior Resident in Pathology, Sioux Valley Hospital, Instructor in Pathology, Medical School, University of South Dakota.

\*\*Intern, Sioux Valley Hospital.

\*\*\*Surgeon, Sioux Valley Hospital, Clinical Faculty, Medical School, University of South Dakota.



Initial laboratory data included hemoglobin 9.6 gm%, red cell count of 4.01 million/mm<sup>3</sup>, hematocrit 30%, mean corpuscular hemoglobin 24 micromicrograms, mean cell volume 75 cubic micra, mean corpuscular hemoglobin concentration 32%, white blood cell count 5,300/mm<sup>3</sup> with 40% neutrophils, 22% neutrophilic bands, 32% lymphocytes and 6% monocytes; sedimentation rate 16 mm/hr., platelet count 145,000/mm<sup>3</sup>, serum creatinine 0.6 mg%, BUN 31 mg%, prothrombin time 11 seconds (control 12 seconds), partial thromboplastin time 26 seconds (control 21 seconds). The urinalysis specimen was described as slightly turbid with a specific gravity of 1.014, pH 5, protein 1+, negative reducing substances, small amount of ketone bodies, no hemoglobin and an unremarkable sediment.

Immediately after admission the patient was transfused with 300 ml. of whole blood. On 3-15-69, the hemoglobin had risen to 12.7 gm%. On 3-17-69 the hemoglobin had again dropped to 9.6 gm% with a hematocrit of 28%. She was given an additional 300 ml. of whole blood. Liver function studies included an SGOT of 72 R-F units, total bilirubin of 0.2 mg% (direct 0.1 mg%, indirect 0.1 mg%). The serum protein electrophoresis included a total protein of 4.9 gm% with 2.5 gm% albumin, 0.4 gm% alpha I globulin, 0.7 gm% alpha II globulin, 0.6 gm% beta globulin and 0.7 gm% gamma globulin.

An intravenous pyelogram demonstrated bilateral excretion at five minutes. The kidneys were bilaterally enlarged with little distortion of major collecting systems. Functioning renal tissue was interspersed with zones of nonfunctioning tissue. The findings were consistent with bilateral polycystic kidney disease (Fig. 1).

On 3-19-69 esophagoscopy and a liver biopsy were performed. The vessels at the gastroesophageal junction were dilated and clotted blood was adherent. The liver edge was palpated one finger breadth below the right costal margin through a small midline incision. It was pale, firm and difficult to cut with a scalpel. The kidneys were examined by palpation. Multiple cysts were present in each kidney. The mesenteric veins were dilated. Portal vein pressure was not obtained. The post operative course was satisfactory.

The liver biopsy was described as tan and firm. Microscopically, broad bands of dense fibrous tissue extended randomly between portal areas (Fig. 2). They included tubular structures identical in appearance with distorted bile ducts and a few chronic inflammatory cells. The



Figure 1

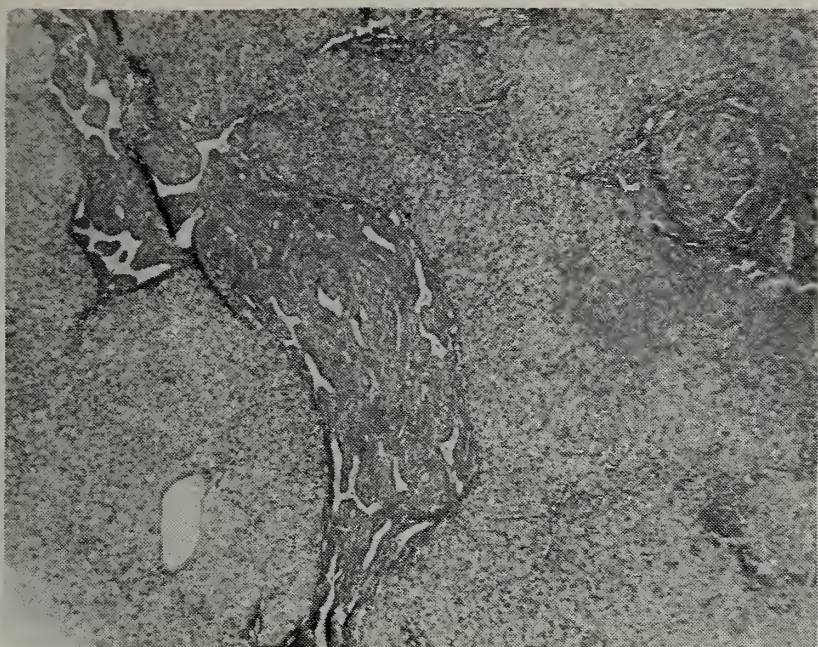
The intravenous pyelogram demonstrates renal enlargement. Zones of functioning renal tissue are interspersed with zones of non-functioning tissue.

larger "ducts" were lined by low columnar epithelium (Fig. 3). Occasional small ducts were intermixed and were the only type represented in the very narrow septae. Their cells were cuboidal. The cytoplasm of occasional cells lining the ducts contained small amounts of periodic acid Schiff positive material. The nuclei were oval, small and were located at the base of the taller cells. Similar ducts were located just beneath the capsule in areas of minimal fibrosis. Radicals of the hepatic artery were randomly distributed throughout the septae. Their walls were focally thickened. Small radicals of the portal vein were conspicuously absent. The lobular architecture remained intact. Bile stasis was not apparent. A few chronic inflammatory cells could be identified in the areas of fibrosis.

## DISCUSSION

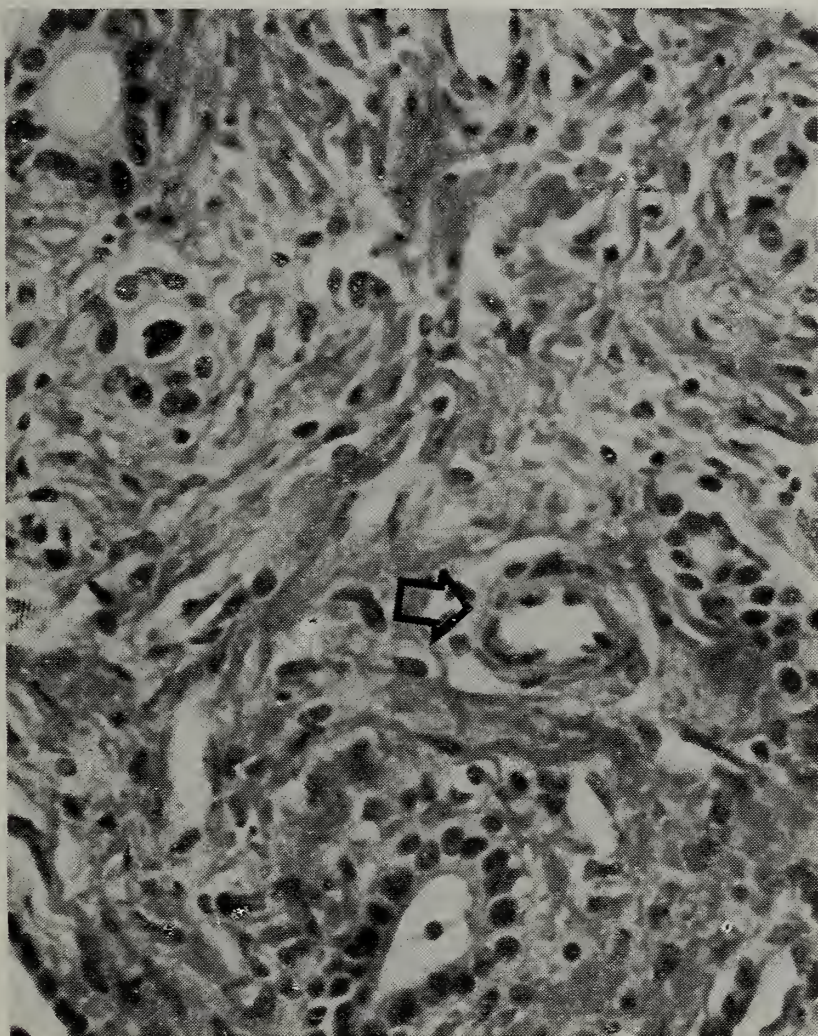
Most cases of congenital hepatic fibrosis present with hepatosplenomegaly. The liver is typically firm with an irregular surface. Characteristic microscopic changes include broad intersecting bands of fibrous tissue containing cystic spaces identical in appearance with deformed bile ducts. Inspissated bile may or may not be observed. Inflammatory cells are sparse. The architecture of the lobule is typically preserved.





**Figure 2**

Broad bands of fibrous tissue separate normal hepatic lobules. "Bile ducts" are numerous.



**Figure 3**

High power view of fibrous band. Dense fibrous tissue separates numerous bile ducts. A radical of the hepatic artery is included (arrow).

Small radicals of the portal vein are inconspicuous or absent. Hepatic function is typically well preserved. The clinical, laboratory and pathological findings easily distinguish this entity from cirrhosis. Portacaval shunt is the treatment of choice.

Congenital hepatic fibrosis alone is frequently sporadic, but when observed with polycystic kidney disease, is apparently inherited as a recessive trait.<sup>2</sup>

The first manifestation of the syndrome in this patient was severe upper gastrointestinal hemorrhage at age two. The site of hemorrhage was not determined and the patient was temporarily lost to followup. At age three, a second hemorrhage occurred. Physical examination demonstrated enlarged irregular kidneys and a very firm enlarged liver. There were no significant changes in the liver function tests. Esophageal varices were observed at the time of esophagoscopy and the bleeding site confirmed. The biopsy specimen was microscopically identical to a number of previously described cases. Small radicals of the portal vein could not be identified.

### SUMMARY

A case of polycystic kidney disease with congenital hepatic fibrosis and massive hemorrhage from esophageal varices is presented. Three siblings and the parents will be evaluated and are to be the subject of a subsequent report.

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# 20 Years Ago

## ... IN THE JOURNAL

TWENTY YEARS AGO IN THE SOUTH DAKOTA JOURNAL OF  
MEDICINE AND PHARMACY, NOVEMBER, 1949

### HURON GETS DOCTOR

**Dr. Clifford Gryte**, graduate of the University of North Dakota and Bowman-Gray School of Medicine, North Carolina, has entered practice at the Huron Clinic, Huron, South Dakota, as an internist.

He interned and received his residency at Baptist Hospital, Winston-Salem, North Carolina.

\* \* \*

Excerpt from the article, "The Contribution of the South Dakota Basic Science School to the Physician Population of Its State and Area."

Walter L. Hard

### SUMMARY

1. Sixty-seven percent of all students enrolled in the South Dakota School of Medical Sciences have been residents of South Dakota. The post-war years, to and including 1948, are consistently above this average with a maximum of native enrollment of 83 percent.

2. Six hundred and thirty-three students have transferred to 53 medical schools. Two-thirds of this number have been accommodated in seven schools which follow in numerical order: Rush, Northwestern, Washington U. (St. Louis), Nebraska, Creighton, Temple, and Illinois.

3. About one-fifth (19.1%) of the 451 licensed physicians in South Dakota graduated from the School of Medical Sciences.

4. Fifteen percent of the total number of students transferred from the basic science school have returned to South Dakota to practice. This figure has been nearly doubled (28%) during the past four years (1945-48).

5. Three-fourths of the total number of students transferred are practicing in the north central area.

6. The schools which have made the major contributions, in terms of numbers, to the physician population in South Dakota are: Northwestern (11.9%), Rush (11.5%), Creighton (10.6%), Minnesota (9.5%), Illinois (8.2%), Iowa (6.9%), and Nebraska (3.8%).

\* \* \*

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Spanophilia — love of the rare, nose bleed is more often due to picking the nose than to multiple hereditary hemorrhagic telangiectases.

Sloth — physical and mental, lapses of aseptic ritual may stretch the doctors power of healing to the utmost.

\* \* \*

### SUBSCRIPTION PRICE RAISED

The Council of the South Dakota State Medical Association and the Executive Committee of the South Dakota Pharmaceutical Association have voted to raise the subscription price of the South Dakota Journal of Medicine and Pharmacy to \$2.00 per year effective January 1, 1950.

\* \* \*

### NEWS NOTE

**Dr. E. F. Kalda**, formerly associated with **Drs. Spiry** and **Harris** in Mobridge opened practice in Platte, October 22nd.





# CLINICOPATHOLOGICAL CONFERENCE

*From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Departments of Pathology of the Hospital and of the School of Medicine of the University of South Dakota*



JOHN F. BARLOW, M.D.\*

*Pathologist - Editor*

BILL G. CHURCH, M.D.\*\*

*Neurosurgeon - Discussor*

## COENUROSIS IN THE BRAIN OF A CHILD FROM SOUTH DAKOTA

### Case No. A68-106 (465750)

This was the first Sioux Valley Hospital admission of a two and one-half year old son of a farmer with a chief complaint of low grade fever of 5-7 weeks duration.

Five to six days prior to the onset of fever the patient had "bumped" his head and had become irritable. The fever was up to 103°F. and was associated with increasing irritability, anorexia, malaise, and lassitude. The mother noted that he was carrying his head to one side. He also cried vociferously when laid on his back. There was no seizure activity.

Two weeks prior to admission, he was hospitalized by a family physician who performed a lumbar puncture which showed 90 cells all of which were mononuclear. He had been treated with terramycin, sulfa, and lincomycin without relief from fever.

There were two dogs on the farm and the patient had been in close contact with both. Both sheep and cattle were raised on the farm. Two months ago, one of the cattle was diagnosed as having brucellosis.

The patient was the product of a full term normal delivery. There were no complications during pregnancy or delivery. The growth and

development had been normal. He sat up at six months and walked at one year. There were no unusual medications during pregnancy. One cousin had had a baby with "water on the brain" but the patient had had no noticeable increase in head size.

Physical examination revealed blood pressure of 130/70, pulse 140/min., respiration 30/min. and temperature of 101°F. on admission.

The boy was thin, blond, attractive, extremely irritable and appeared to have poor hand coordination and was acutely ill. He laid on his abdomen with his head turned to the right. He could sit and stand but seemed terrified at the prospect. On standing he tended to drift to the right. He was not able to maintain balance without assistance. There was some truncal ataxia. The head circumference was 55 cm. The fontanelles were closed but the head configuration suggested hydrocephalus with prominence of frontal bosses and wideness of the back of the head. The pupils were round and equal and reacted to light and accommodation. External ocular movements were normal. The eyegrounds showed early blurring of the medial disc margins. The cranial nerves appeared to be intact. The reflexes were brisk and equal. The abdominal reflexes were present and equal. Both plantar responses were extensor bilaterally.

There were no abnormalities of the nose and throat. There was no cervical adenopathy. The patient complained on movement of the neck

\*Pathologist, Sioux Valley Hospital, Professor of Clinical Pathology, School of Medicine, University of South Dakota.

\*\*Neurosurgeon, Sioux Valley Hospital, Clinical Faculty, School of Medicine, University of South Dakota.



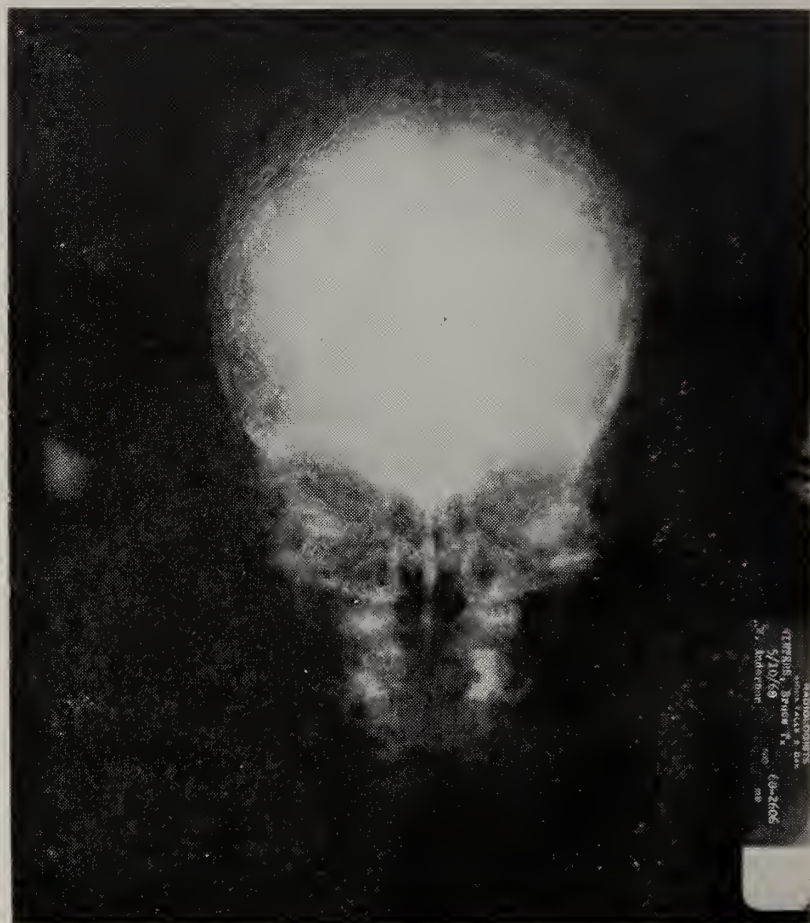
but there was not definite nuchal rigidity. The lungs were normal to auscultation and percussion. There was a sinus tachycardia at 140/min. but no murmurs or arrhythmia. The liver was two finger breadths below the right costal margin in the sitting position but no other organs or masses were felt.

Clinical pathology data: urinalysis-yellow, cloudy, specific gravity 1.028 pH 5.0, negative for protein, glucose and hemoglobin. There was a large amount of ketone bodies. The sediment showed only amorphous urates. Hemoglobin 12.1 gms%, red count 4.56 million/mm<sup>3</sup>, hematocrit 40 Vol. %, mean corpuscular hemoglobin 26 micromicrograms, mean corpuscular volume 86 cubic micra, mean corpuscular hemoglobin concentration 30%, total leukocyte count 13,400/mm<sup>3</sup> with a differential of 74% segmented neutrophils, 5% neutrophilic bands, 19% lymphocytes and 4% monocytes. The red cells were normochromic, normocytic and the platelets were adequate on smear. An erythrocyte sedimentation rate was 35mm/hr. Agglutinations to brucella showed no titer. Stools for ova and parasites were negative on three occasions. An intermediate PPD was negative. Stools for occult blood were negative.

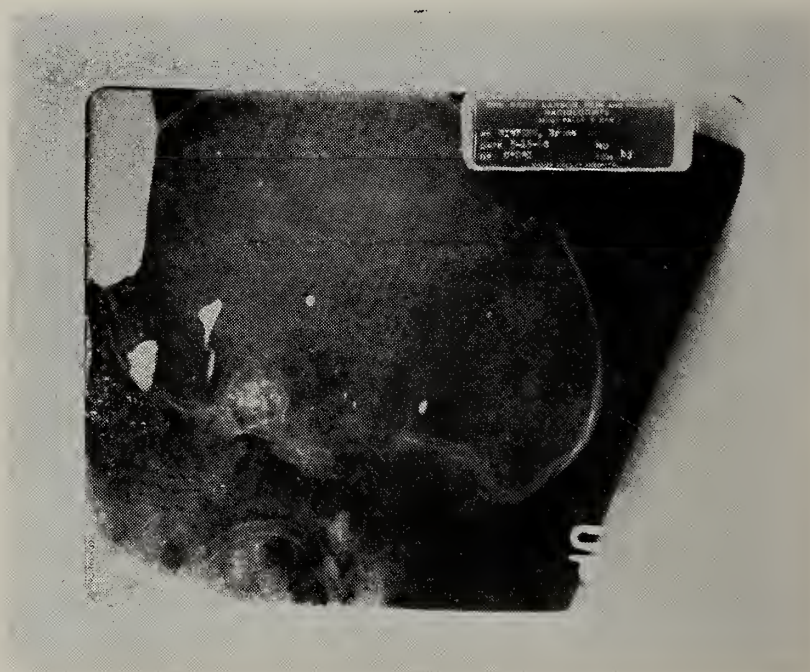
After admission a radioisotope brain scan using Mercury 197 was negative. Skull films showed a large skull with widened sutures. The digital markings were prominent throughout the skull. The appearance suggested increased intracranial pressure. The internal aspect of the sella turcica was irregular, also suggesting increased intracranial pressure. No intracranial calcifications were seen (See Figs. I, II). X-ray films of the cervical spine and chest were unremarkable. An hepatic scan with radioactive gold was negative. A positive contrast ventriculography revealed dilatation of the ventricular system including the third and fourth ventricles. No deformities were noted. Since the dye did not appear to be descending into the spinal canal, an obstructive process at the foramen magnum was suggested. Initial ventricular tap showed clear colorless ventricular fluid. There was 12 erythrocytes and 25 leukocytes with 8% polynuclear forms and 92% mononuclear. The protein was 53 mgs% and the lactic dehydrogenase 57 units. A repeat one day later of the ventricular fluid was slightly turbid and xanthochromic. There were 120 red cells/mm<sup>3</sup> and 82 leukocytes/mm<sup>3</sup> with 43% polynuclear forms and 57% mononuclear cells. The protein was 70 mgs%, lactic dehydrogenase 73 units, glucose 40 mgs%, chloride 122 meq/L.

The serology was non-reactive on the ventricular fluid. Cell blocks and culture for routine pathogens, mycobacteria, and fungi were negative on both ventricular specimens.

Some seizure activity occurred after the ventricular tap necessitating repeat tap. On the 11th hospital day a posterior fossa exploration was carried out.



**Figure I**  
Skull film showing beaten silver appearance of skull.



**Figure II**  
Abnormal ventriculogram showing fragmentation of contrast material and posterior fossa and no passage of contrast material below foramen magnum.

## DISCUSSION

DR. BARLOW: The case we are discussing today is a rarity. It is being presented here as an



intriguing curiosity. I feel it is worth reporting because of its extreme rarity and because there is always the possibility that other similar cases may be uncovered in South Dakota. The case is being reported elsewhere also by Hermos et al.

Dr. Church, will you describe your findings at the first operation?

DR. CHURCH: An exploration of the posterior cranial fossa was done. On incising the dura, there was a great deal of increased pressure. Therefore, the patient was decompressed with a ventricular cannula. The dura was then opened exposing a grape-like mass of translucent thin-walled cysts lying between the cerebellar hemispheres and in the area of the posterior fourth ventricle and also in the area underlying or inferior to the cerebellar hemispheres. The material was removed piecemeal. The cysts were found far anteriorly underlying the cerebellar hemispheres on each side and there were some down around the spinal cord in the supra-cervical region. Some of them surrounded the posterior inferior cerebellar arteries and nerve roots coming off the brain stem. These were gently teased away from the surrounding structures.

DR. BARLOW: The specimen which Dr. Church sent to the laboratory was composed of multiple small bladders containing larval forms of a tapeworm (Cestode). (See Fig. III). On frozen section performed by Dr. Durward Lang, a scolex with suckers and hooklets was identified (See Fig. IV). We recognized this as a larval form of a tapeworm (Cestode) and a debate followed as to whether the cestode was a larval form of *Ecchinococcus granulosus* or the cysticercus of *taenia solium*, the pork tapeworm.

Several experts were consulted. Dr. McFadden in Omaha and Dr. Belding in Boston felt the lesion was *Ecchinococcus granulosus*. The Armed Forces Institute of Pathology thought that the findings were those of cysticercosis from *taenia solium* (cysticercus *cellulosae*). A final authority was consulted — the parasitology division of the National Communicable Disease Center in Georgia. Dr. Healy of this division suggested a rare parasite of the multiceps species. Because of his great interest in the case, we sent him the remaining pathologic specimen and he carried out extensive dissection studies and confirmed his opinion that the organism was multiceps species. Since Dr. Healy studied the specimen most thoroughly, we are calling this case one of coenurosis of the brain secondary to the larval form (coenurus) of the adult tapeworm,

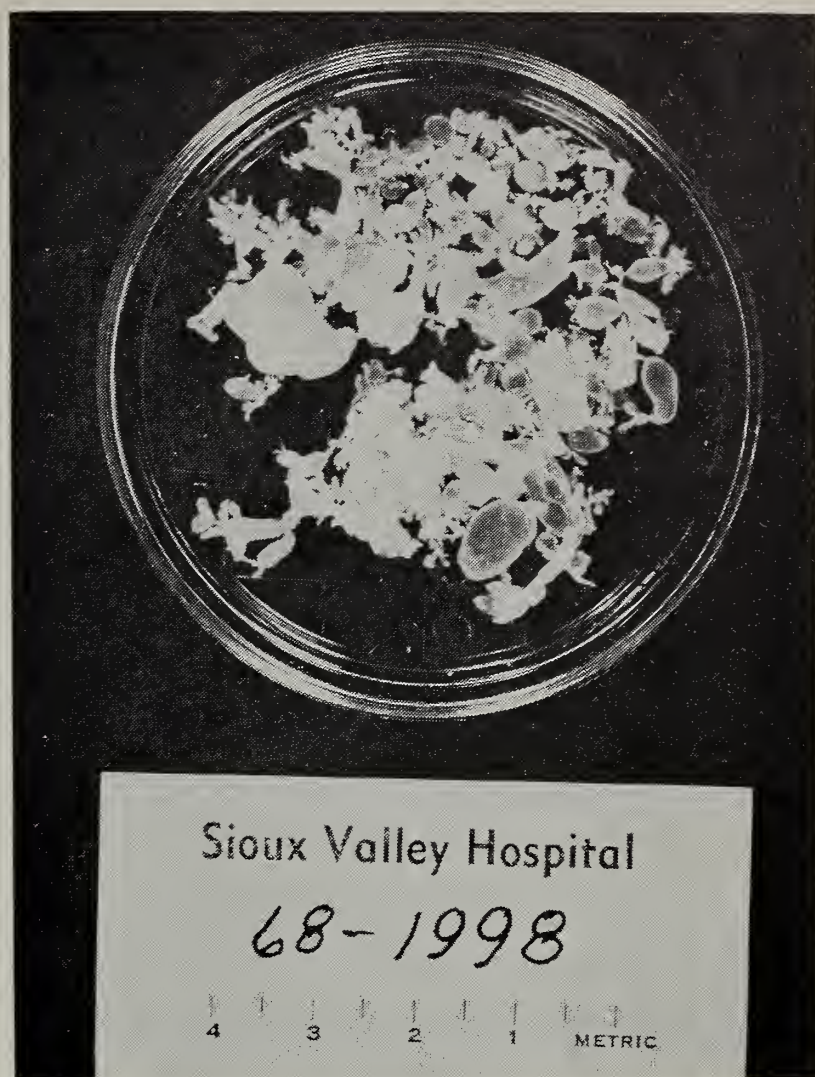


Figure III

Racemose cysts found in posterior fossa.

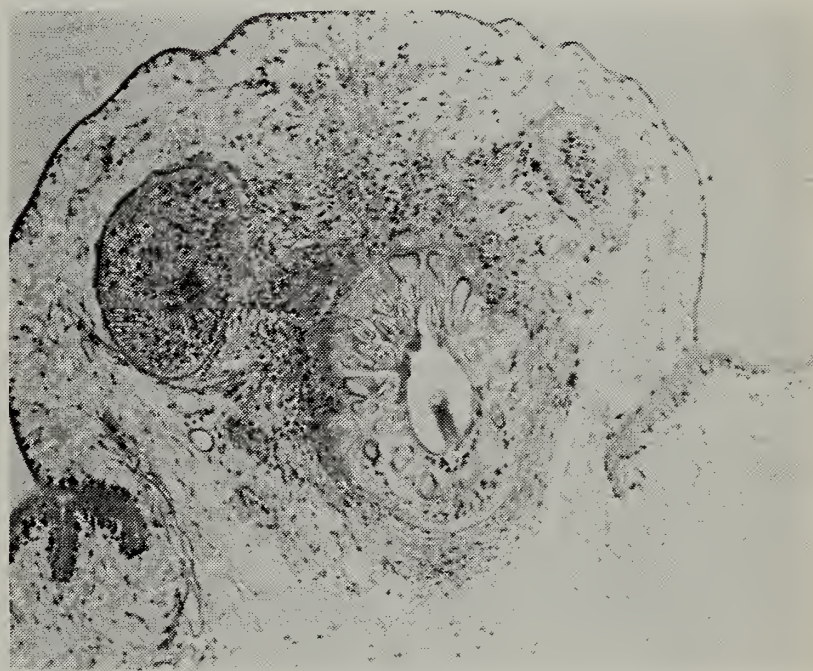


Figure IV

Scolex with hooklets (center) which were seen on frozen section.

*taenia multiceps*. Dr. Healy described the numerous fragments of the tapeworm bladder and endogenous scolices which when crushed contained 29-30 hooklets which had measurements which coincided with those of *taenia multiceps*. Dr. Healy felt the site of the bladder, its gross and microscopic morphology as well as the length of the hooklets indicated that this was



a coenurus of *taenia multiceps*. The following show some pictures Dr. Healy took after dissection. (See Figs. V, VI, VII).

There is considerable taxonomic controversy about the proper classification of *taenia multiceps* and about the validity of distinct species of multiceps. Size and shape of the hooklets on the larval scolex, arrangement and size of the scolices within the coenurus and the host and tissue specificity have been used to distinguish between multiceps species. Four species have been described — *taenia multiceps* or *multiceps multiceps* in which the coenurus occurs in the brains of sheep and other ungulates; *taenia serialis* or *multiceps serialis* in which the coenurus occurs in the intermuscular and subcutaneous tissue of rabbits and other rodents; *taenia brauni* or *multiceps brauni* in which the coenurus occurs in monkeys and wild rodents in tropical Africa; and *taenia glomerulatus* or *multiceps glomerulatus* in which the coenurus has been found in murine rodents in tropical Africa. There is probably not adequate morphologic grounds for making these species differentiations according to Clapham and Esch and Self. *Taenia multiceps* may be used as an all inclusive term to refer to all of these species.

Before discussing more about the pathogenesis of this disease and possible differential diagnosis, perhaps we should ask Dr. Church about the subsequent course of this patient.

DR. CHURCH: After the first operation there was only minimal improvement in the patient. He developed irritability and rigidity with bulging of the posterior wound. He required re-exploration and small cysts were found on the dura. Two days after this the patient died.

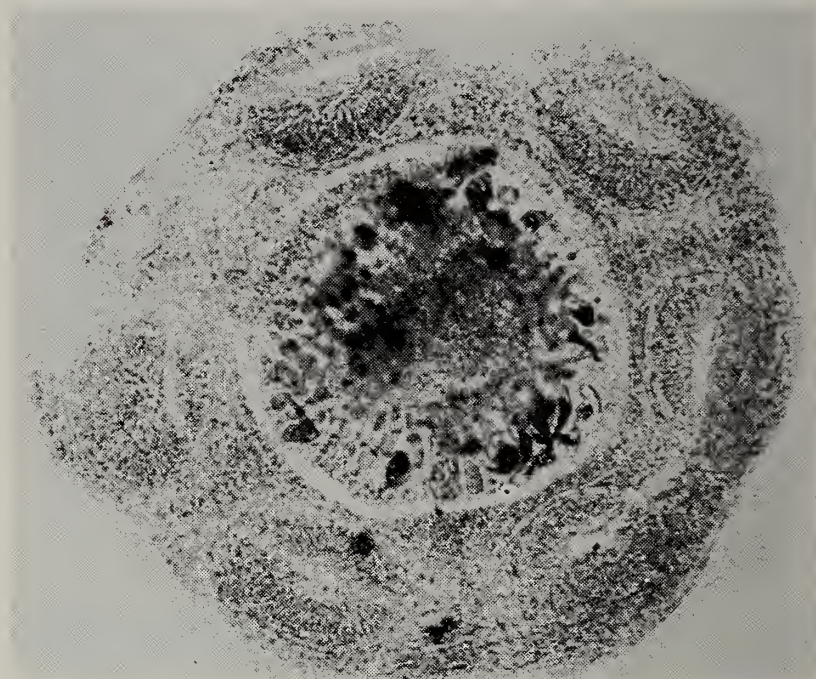
#### **PATHOLOGICAL DISCUSSION:**

DR. BARLOW: Before discussing the investigation of this case, I think we could review the different types of tapeworms and their life cycles in order to understand how we arrived at some of our conclusions.

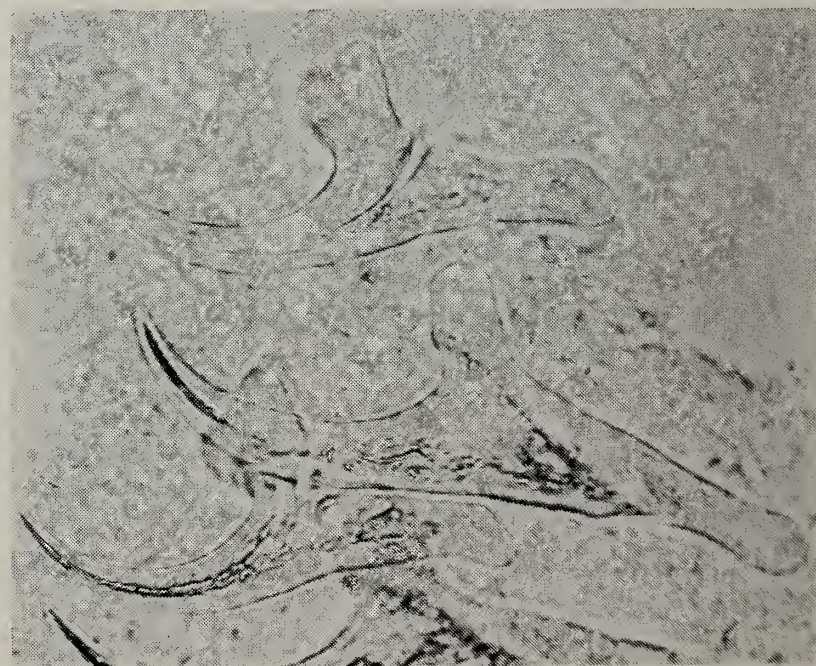
The cestoda are endoparasitic flatworms known as tapeworms. The adults are mostly hermaphroditic and inhabit the intestinal tract of vertebrates. The larval forms are found in tissues of vertebrates or invertebrates. The head of the worm is called the scolex and is equipped for attachment with grooves (bothria), muscular sucking discs or suckers, and chitinous hooks or hooklets. One or more of these attachment devices may be on the scolices of various species. Behind the scolex is the neck and behind the neck is the strobila, a tape-like chain of progressively developing segments or proglottids. The



**Figure V**  
Two scolices in coenurus (Courtesy Dr. Healy NCDC, Atlanta, Georgia).



**Figure VI**  
Central hooklets surrounded by six suckers (Courtesy Dr. Healy NCDC).



**Figure VII**  
Closeup of hooklets (Courtesy of Dr. Healy NCDC).



strobila of various worms may vary from a few mm to 10 meters. The number of proglottids varies in different tapeworms. Each is independent and contains both sex organs and no digestive tract. Nutrition is by absorption and the proglottids are broken off and passed or disintegrate to release ova. The different types of tapeworms can be distinguished by the type, number, size and configuration of the attachment devices on the scolex; the length, shape and internal structure of the proglottids; and by the type of ovum passed in the feces (Figure VIII).



















	DIPHYLLOBOTHRIUM LATUM	TAENIA SOLIUM	TAENIA SAGINATA	DIPYLIDIUM CANINUM	HYMENOLEPIS NANA	ECHINOCOCCUS GRANULOSUS
SCOLEX	 x10	 x10	 x10	 x20	 x50	 x40
PROGLOTTID	 x1	 x1	 x1	 x3	 x30	 x5
OVUM	 x300	 x300	 x300	 x300	 x300	 x300

Fig. 8. Differential characteristics of common tapeworms of man.

Figure VIII

This picture was reproduced from Belding, Textbook of Parasitology —third ed.— Appleton-Century-Crofts.

Tapeworms require a definitive host in whom the adult worm lives and an intermediate host in which the larval form lives. Man may be the definitive host, the intermediate host or both. As we shall see we are most interested in the larval forms of the cestodes in man; or, to say it differently, when man is the intermediate host.

The development of larval stages varies with species. There are two main types: (1) solid larvae and (2) bladder larvae. The fish tapeworm *diphylobothrium latum* is an example of solid larvae. All those we will discuss have bladder larvae. The differences can be best shown in the following illustration.

The proceroid and plerocercoid are solid larvae. The cysticercoid differs from cysticercus in that the form has a slightly developed bladder and a posterior solid portion. The cysticercus

Life Cycle




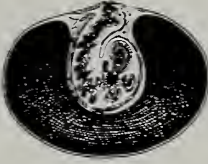
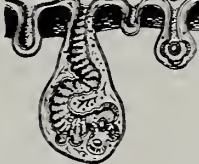
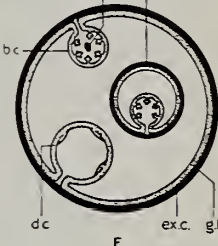
PROCERCOID	PLEROCERCOID	CYSTICERCOID
 A	 B	 C
CYSTICERCUS	COENURUS	ECHINOCOCCUS
 D	 E	 F

Figure IX

This picture was reproduced from Belding, Textbook of Parasitology —third ed.— Appleton-Century-Crofts.

is a bladder enclosing a single inverted scolex. In our case, more than one scolex was found per bladder. The cysticercus form of larva characteristic of *taenia solium* is therefore ruled out. When a number of scolices develop from a germinal layer of the cyst wall, it is known as coenurus. We believe we have a coenurus characteristic of *multiceps* species in our case and this is one major reason we classify it as coenurosis. When the germinal layer produces daughter cysts in which brood capsules give rise to numerous scolices, it is termed an echinococcus. In general, the serious diseases of man occur when he harbors the larval form of parasite (is the intermediate host). Examples are cysticercosis *cellulosae* from *taenia solium*, echinococcus cyst from *E. granulosus*; and, in our case, coenurosis from *multiceps* species.

I shall now show the life cycles of some common tapeworms. In the life cycle of *taenia saginata* or beef tapeworm, man is the definitive host and harbors the tapeworm in his gastrointestinal tract. The ovum is passed in the feces and ingested by cattle. The egg excysts in the intestine and the larva penetrates the intestinal wall and burrows into skeletal muscle where the bladder worm or cysticercus lodges. This is ingested by a carnivore or man and the adult worm forms in the intestine. The infestation is relatively harmless unless massive.

The life cycle of *taenia solium* or pork tapeworm is similar to *taenia saginata* with one im-



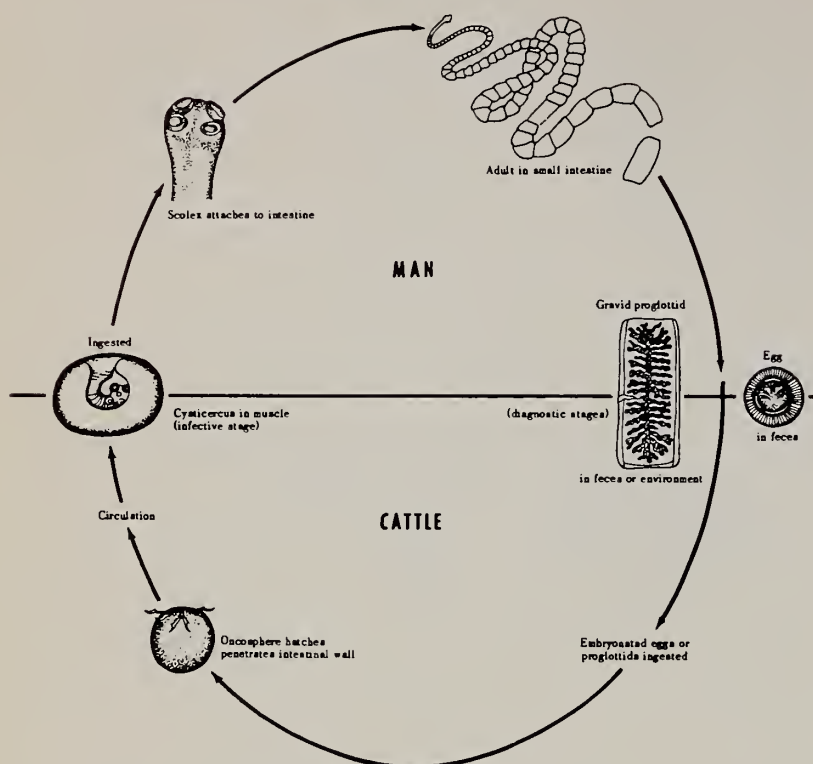
*Taenia saginata*

Figure X

portant difference. Although man is the definitive host in *taenia solium*, he can also be the intermediate host; that is, he can harbor the bladder worm or cysticercus. The cysticercus is acquired by (a) autoinoculation from worms in the intestine with regurgitation of ova into the stomach by reverse peristalsis, (b) oral transmission of ova by the unclean hands of carriers of the adult worm, (c) ingestion of food or water contaminated with ova by infected feces or flies. The ova hatch in the intestine. The cysticerci invade many tissues including the brain, meninges, and ventricles. The disease is rare in the United States. The parents of our patient had no serologic evidence of *taenia* and no ova in the feces. The child did not harbor the adult worm. *Cysticercus cellulosae* must be considered in this case, but according to Dr. Healy of NCDC, the morphology of the specimen removed from the patient was not that of the cysticercus of *taenia solium*.

The diagnosis of the dog tapeworm or *Echinococcus granulosus* was seriously entertained in this case. Note from the life cycle that the dog or other carnivores is the definitive host. The worm is minute and is 2.5-9.0 mm. in length. Through misunderstanding two dogs in the family were killed and their gastrointestinal tracts examined for these worms. The examination of the gastrointestinal tract was done by us and by the NCDC. In the life cycle of *Echinococcus granulosus* the usual intermediate host is sheep who get the worm by ingesting the ova-laden

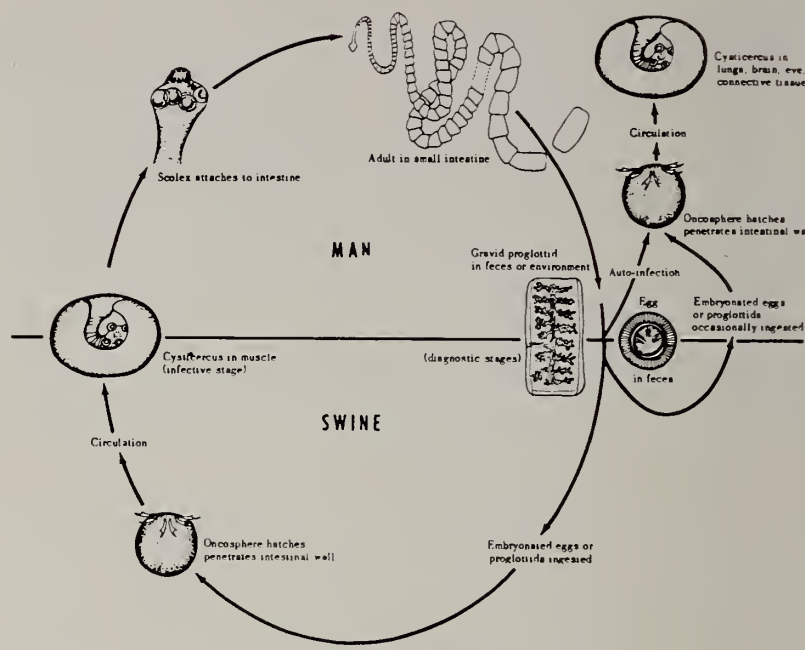
*Taenia solium*

Figure XI

feces of carnivores. Man and particularly children may become inadvertent intermediate hosts by contaminating their hands with dog feces containing ova. The larvae hatch in the intestine and enter the tissues. The larval cysts, which are often huge, are usually single and located in the liver; but may be seen in lung, bone or brain. The cyst is usually single but may be multiple or alveolar. A related organism *Echinococcus multilocularis* has a multilocular cyst. The intermediate hosts are mice and the definitive host dogs or fox. The cyst is alveolar, aggressive, and metastases occur. *E. multilocularis* is commonly found in Alaska. *Echinococcus granulosus* is found in Iceland and New Zealand, South America and Africa but is distinctly uncommon in the USA. Brain involvement may occur with both *Echinococcus granulosus* and *Echinococcus multilocularis* but is rare. *Echinococcus* was a possibility here, but the morphology of the cyst was not that of *Echinococcus*.

The life cycle of *taenia multiceps* is very similar to that described for *Echinococcus granulosus*. Adult tapeworms of *taenia multiceps* have been found in the intestines of dogs and other canines in this area. The canine is thus the definitive host. The larval stage, the coenurus, develops in a wide variety of herbivorous and omnivorous animals (rabbits and rodents as well as sheep). The life cycle requires the passage of ova from the feces of the definitive host



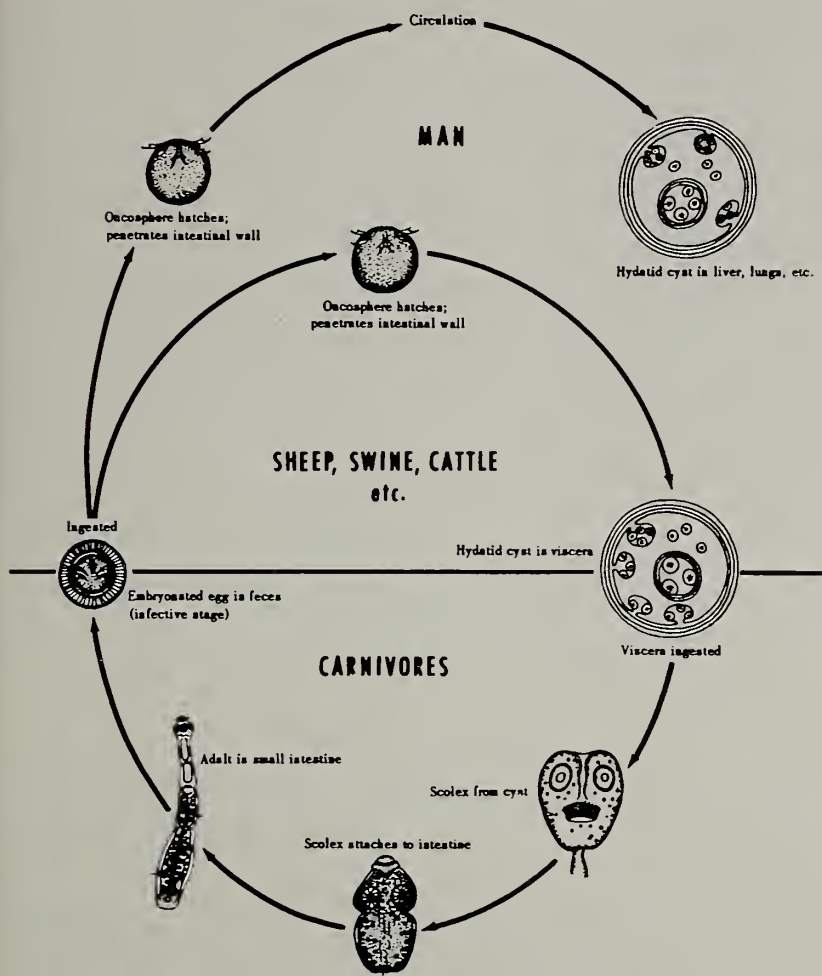
*Echinococcus granulosus*

Figure XII

The life cycle of *taenia multiceps* is similar to the life cycle of *Echinococcus granulosus*.

(carnivore). The ova are ingested by the intermediate host. The larva hatch in the intestine. Larvae penetrate the gut wall and then migrate to where the coenurus develops. The life cycle is completed when carnivores prey on or feed upon the carcasses of the intermediate hosts and ingest the coenuri which then develop into adult tapeworms in the carnivore. As in echinococcal disease, children may become inadvertent intermediate hosts by consuming eggs from contaminating their hands with canine feces.

Because of the difficult differential diagnosis, an epidemiologic investigation was performed. Dr. John Hermos from the epidemiology branch of NCDC, Dr. Bill Church, Ben Diamond of the Public Health Department, and Dr. John Barlow, Pathologist, visited the farm where the patient lived in Davison County in Southern South Dakota. I will summarize Dr. Hermos' report. The habits and contacts of the child, the intermediate hosts of *T. Multiceps* in the area, the likely definitive hosts related to the case and the possibility of additional cases were investigated.

The principal livestock were cattle, hogs, geese and chicks. No sheep were raised, but the

family had four lambs. As might be expected, in spite of the fact that pens were well maintained, the ground about the house was littered with animal feces. In addition to the family dogs, the patient had been in contact with dogs and sheep from other families and relatives when he visited their farms. He was a normal curious boy and did put foreign objects from the ground in his mouth and did often crawl for distances about the house.

Originally it was the aim of the investigation to establish the diagnosis of central nervous system coenurosis occurring in sheep in this area. In sheep the disease causes a syndrome known as "gid," "sturdy," or "blind staggers" leading to coma and death. The disease was reported in 1910 by Hall in Northern Montana and scattered cases were reported in other states but no reports of its existence in sheep in the United States have appeared recently. Unfortunately, sheep and lambs are not autopsied when isolated deaths occur in this area. In slaughterhouses the brain and spinal cord are not routinely examined. If parasitic cysts had been identified in cases there may have been no report to public health officials. If coenurosis did occur among sheep, there could have been spread of disease to wild and domestic carnivores since the carcasses of dead sheep were allowed to be about for several days before being picked up by a rendering service.

Veterinarians and sheep ranchers were surveyed and no cases of "gid" could be recalled. Serologic examinations on sixteen sheep from neighboring farms including the four lambs on the farm and 40 sheep from a large abattoir were negative. No cases of gid in sheep were noted by veterinarians or parasitologists in neighboring states of Iowa, Minnesota, Montana, Nebraska, North Dakota or Wyoming. Cattle are less likely hosts for coenurosis and serology tests for cysticercosis and echinococcus antigens were negative on twelve cattle in the family herd.

An important finding was that several parasitologists in the area did not think cerebral coenurosis existed in sheep, but did know it existed in rabbits of the area. The organism is called *taenia* or *multiceps serialis* but is probably identical to *taenia multiceps* or *multiceps multiceps* and involves the subcutaneous tissue and intramuscular connective tissue of rabbits and other rodents. Cottontails and white tailed and black tailed jackrabbits are abundant in this area and are a prey for dogs and wild canines. The prevalence of coenurosis in rabbits in



the central plain States has been demonstrated as ranging from 4.2% to 19.2%. A survey also revealed that coenuri were common in mink.

Since the patient probably became infected a year prior to investigation, judging from the life cycle of *T. multiceps*, it was felt that chances of identifying the specific definitive host was unlikely. In addition to the family dogs the boy may have picked up the infection by contaminating his hands with ova from feces of neighboring dogs, wild dogs, fox and coyotes. Seven dogs and two cats in the area were found to have tapeworms — *Taenia pisiformis*, and *taenia taeniaformis*. No *taenia multiceps* were found. The tapeworm species found in the dogs do have intermediate hosts such as rabbits and rodents similar to *T. multiceps*. The presence of the related worms proves the canines were feeding on rabbit or rodent reservoirs.

Serology for *taenia* antigens and *echinococcus* antigens in family members of close neighbors and relatives were negative. Titers of these in the patient were very high.

#### Review of Literature

Coenurosis has been described in subcutaneous tissues, eye and brain of man from South Africa, England, France, Kenya, Uganda, Nigeria, and the United States. Johnstone and Jones in 1950 described extensive brain involvement in a 26 month old male from California who had resided in Idaho and Northern Nevada. The child developed right hemiparesis, marked ataxia, papilledema, and hydrocephalus. There were grape-like clusters of cysts at the base of the brain, in the cerebellum, and near the anterior limb of the internal capsule and anterior tips of the caudate and lentiform nuclei. Becker and Jacobson described four cases of human brain coenurosis with characteristic racemose cysts in the posterior fossa appearing like bunches of grapes and causing marked hydrocephalus with increased intracranial pressure and papilledema secondary to blockage of the flow of cerebrospinal fluid at the fourth ventricle. Watson and Laurie described one in the cerebellum with a picture similar to the above and another case in the occipital lobe. Wainwright also described four cases of cerebral coenurosis and discussed the difficulties in distinguishing coenurosis from cysticercus cellulosae. Proctor also discussed various parasitic cysts of the central nervous system. Johnstone and Jones was the only case in the Western Hemisphere. Because of the extreme rarity of the disease, we felt it should be called to the

attention of the physicians of South Dakota.

The autopsy findings in our South Dakota case were mainly limited to the brain. There was an organizing chronic meningitis in the posterior fossa about the fourth ventricle. No more gross cysts were found and no cysts were found on multiple cut sections of the brain stem or cerebellum. There was hydrocephalus of noncommunicating type with dilatation of the lateral and third ventricles due to the fibrous meningitis about the fourth ventricle. There was a thrombus in a cerebral vein which ran over the left cerebral hemisphere but there was no necrosis of brain tissue.

The remainder of the autopsy was unremarkable with moderate pulmonary congestion and edema and fibrous pleural adhesions on the right. No cysts or parasites were found in any of the internal organs.

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## ANNOUNCEMENT

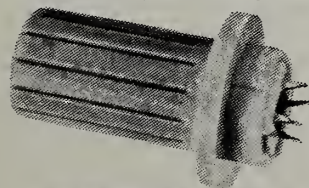
On November 20-22, 1969, Sioux Valley Hospital will sponsor a seminar in Newer Concepts in Newborn Care at Gilbert Science Auditorium at Augustana College. Guest Speakers will be Dr. Carlos Mendez-Bauer, Associate Professor of Obstetrics, University of Minnesota and Dr. Louis Gluck, Professor of Pediatrics, School of Medicine, University of California. Fetal monitoring and the handling of acute pediatric emergencies as well as the critically ill newborn will be covered.

## SUICIDE RATE HIGH AMONG MDs

In a recent report to the American Psychiatric Association, Drs. Walter Freeman of San Jose, California, and Daniel E. DeSole of Albany, New York, said that among physicians in general, the suicide rate is 36 per 100,000 population in contrast to the overall U. S. rate of 11 per 100,000. The physicians added that the rate among psychiatrists in particular is so great — 70 out of 100,000 — that self-destruction might be called an occupational hazard.

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## MEDICAL COSTS

During June, medical costs trailed the consumer price index, rising 0.5 percent, following a 0.6 percent gain in May, the Labor Department reported. The consumer price index rose at a steep 7.2 percent annual pace, double the previous month's rate of 3.6 percent. The cost-of-living measure climbed 0.6 percent in June to a record 127.6 percent of the 1957-59 average from May's 126.8 percent, the department said.

## PHARMACISTS MAY EXPAND ROLE IN CLINICAL MEDICINE

Future pharmacists should "assume primary responsibility for long-term care of certain patients, particularly those requiring continuous drug therapy," Harvard Medical School Dean Robert Ebert said in the keynote address at the American Pharmaceutical Association meeting in Montreal. Such a responsibility, he said, "would mean that the pharmacist would have to acquire certain skills in the examination of the patient, and he would have to extend his knowledge of diseases." The pharmacist could gain his knowledge with the help of pharmacy schools, medical schools and teaching hospitals, he said.

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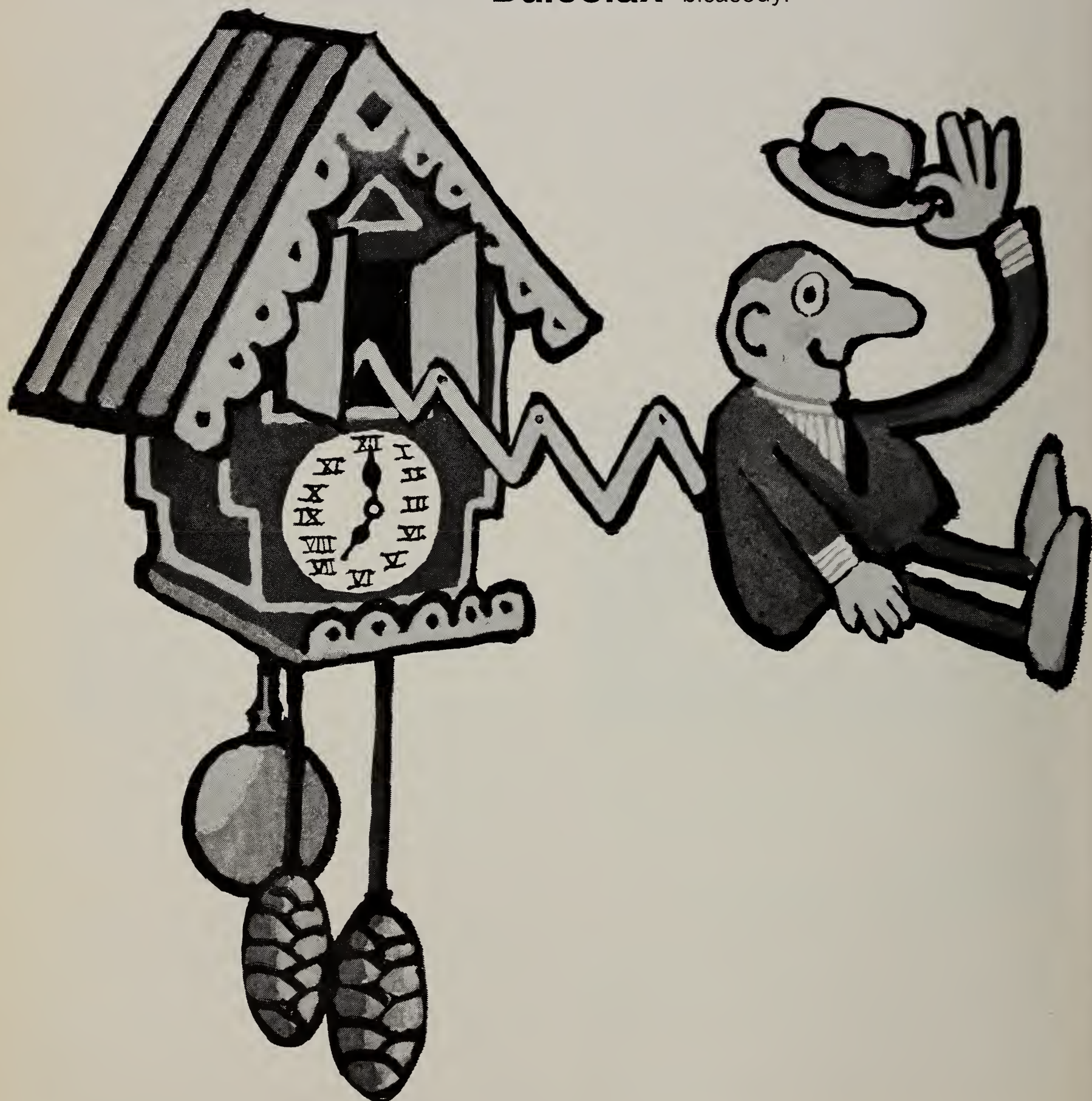
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# Medicine

Legal

M. D.

Ethics

## BILLING FOR COMPLETING ROUTINE HEALTH INSURANCE CLAIM FORMS

The attending physician should complete the appropriate "simplified" Health Insurance Council forms approved by the Council on Medical Service, without charge, as a part of the physician's service to the patient to enable him to receive his benefits.

The Judicial Council is of the opinion that it is implicit in this statement of the House of Delegates that a charge for more complex forms could be made in conformity with local custom.

This suggestion is advisory. In all cases, the local medical society can be looked to for an authoritative opinion.

\* \* \*

## AGREEMENT BETWEEN PHYSICIANS AS TO FEE — BILLING PROCEDURE

Chapter I, Section 6 of the Principles of Medical Ethics (1955 edition) suggests that remuneration received for professional services should be in an amount announced to the patient and states that billing procedures that violate the patient's trust or that place profit above appropriate medical service are unethical. On no occasion has the Judicial Council expressed the opinion that it is unethical for physicians to consider the economic status of a patient in a conscientious endeavor to keep the total cost of medical and surgical care within the economic limitation of the patient. This practice, carried out in the interest of the patient, is the antithesis of unethical practices that increase the costs of medical care and cause deterioration of medical service. In the opinion of the Judicial Council, it is not unethical for physicians mutually to establish the relative value of their professional services, as such services relate to the eco-

nomic ability of the patient to pay, but each physician should submit a bill for the service he has himself rendered and receive payment therefor directly from the patient.

\* \* \*

## PHYSICIAN'S REPORT ON X-RAYS NOT SUBJECT TO DISCLOSURE

In a patient's suit for damages for injuries caused by alleged medical malpractice, a trial court erred in ordering the patient to furnish the physician against whom the suit was brought with a copy of the report of another physician who had examined X-rays of the patient, a New York intermediate appellate court ruled. Since the report was based solely on an inspection of the X-rays, without any physical or clinical examination of the patient, it was not available to the physician against whom the suit was brought as part of the conventional exchange of medical information in a negligence action. The report was immune from disclosure as material created in preparation for litigation.

\* \* \*

## ORTHOPEDIC SURGEON NOT LIABLE FOR POSTOPERATIVE INFECTION

In a suit alleging that an orthopedic surgeon was negligent in his treatment of a knee infection following surgery, a Georgia trial court jury returned a verdict in favor of the surgeon. The surgeon had operated on the patient to remove a torn cartilage from her left knee. Following the operation she developed a staphylococcus infection at the site of the incision. The patient contended that the surgeon failed to examine and treat the knee properly so as to discover the presence of the infection and combat it. The surgeon denied that he had been negligent in his care and treatment of the patient. The jury's verdict amounted to a finding that the surgeon had not been negligent.

(Continued on Page 58)

Information provided by the Law Department, AMA, 535 N. Dearborn St., Chicago, Ill.



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**Dosage:** One 350 mg. capsule, 3 times daily and two at bedtime is suggested as the adult starting dose. Adjust to suit individual requirements. Daily doses above 3000 mg. are not recommended.

**Contraindications:** Known hypersensitivity to tybamate. Since no studies have been done with this drug in human pregnancy, it should not be used in pregnancy unless the potential benefit outweighs the risk.

**Warnings:** Administer cautiously to patients receiving phenothiazines or other CNS depressants or having history of convulsive seizures (See Adverse Reactions). Consider possibility of additive actions with alcohol or other psychotropic agents, particularly phenothiazines or MAO inhibitors.

**Precautions:** Avoid abrupt withdrawal after prolonged use, although withdrawal symptoms have not been reported to date. Exercise caution in addiction-prone individuals. If symptoms of hypersensitivity occur, discontinue at once and initiate appropriate symptomatic treatment. Avoid activities requiring optimal mental alertness if drowsiness or vertigo are present. As with any new drug, use cautiously in patients with history of drug allergies, blood dyscrasias, and hepatic or renal disease; periodic measurements of hepatic, hematopoietic and renal function should accompany prolonged and/or high doses.

**Adverse Reactions:** Most frequent reactions, rarely requiring discontinuation of tybamate, include drowsiness, dizziness, nausea, insomnia, and euphoria. There have been a few reports of skin rash, urticaria, and pruritus. Rare side effects include hyperactivity, fidgetiness, flushing, and tachycardia, suggesting excessive stimulation; also ataxia, unsteadiness, confusion, feeling of unreality, "panic reaction," fatigue, headache, paresthesias, vertigo, gastrointestinal disturbances, glossitis, and dry mouth. Grand mal or petit mal seizures have been reported in a few hospitalized psychotic patients receiving tybamate (up to 6000 mg. daily) together with phenothiazines and other psychotropic agents, but not with tybamate alone. Consider the possibility of rare, serious adverse reactions such as may occur with the related drug, meprobamate. If excessive amounts are ingested, gastric lavage and symptomatic therapy, including central stimulants as necessary, are recommended. Before prescribing, consult package circular.

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## Path CAPsule

Submitted by the College of American Pathology in connection with the South Dakota Society of Pathologists.

### THE SALMONELLAE

The **Salmonella** group of bacteria constitutes a genus that is world wide in distribution occurring as pathogens in the gut of man and lower animals.

The genus is identified by rather stable biochemical characteristics and in this way is separated from the large numbers of closely related but nonpathogenic coliform bacilli.

Species identification of the **Salmonella** is a more complex and time consuming process because a complete antigenic analysis of the flagellar (H) and cell wall (O) antigens is required. Somatic antigen identification involves testing the organism against various group-specific agglutinating antisera — Groups A, B, C<sub>1</sub>, C<sub>2</sub>, D, E, F, G, H and I are most frequently used. The flagellar antigens, and there may be several, are next identified by tube agglutination tests using a highly motile isolate and pools of flagellar or H-antisera.<sup>1</sup>

At this point in the procedure the flagellar antigens possessed by the organism in the natural state become known (phase 1), to complete the identification the organism must be manipulated in the bacteriology laboratory to present a second series of flagellar antigens (phase 2). Therefore, the identification and speciation of the **Salmonella** organism requires that biochemical criteria be met and that the organism then be placed in a serological group depending on its somatic antigens, and further that the flagellar antigens be identified for both antigenic phases.

e.g. **Salmonella newport**<sup>1</sup>

Group C<sub>2</sub>—somatic antigens—(6, 8)

Flagellar antigens—phase 1—e, h  
phase 2—1, 2

Due to the complexity of the antigens of the **Salmonella**, any classification system utilizing cell antigens must itself be extensive and this is indeed the case. There are over twelve-hundred species of **Salmonella** recognized by serotyping. The practice of giving each new serotype a species name indicating the geographical area in which it first was isolated does not imply that a new species has been established in the Linnaean sense. Rather, this indicates the recovery of a **Salmonella** possessing

a new antigenic complex but differing little from other organisms in the genus.

The disease that follows the ingestion of **Salmonella** organisms may be any of the three general types depending on the species involved. Enteric fever is most severe when caused by **Salmonella typhosa** (typhoid fever). **S. paratyphi**, **S. schottmulleri** and **S. hirschfeldii** may cause a similar disease. Septicemia, with or without local abscess is most frequently produced by **S. choleraesuis**. Gastroenteritis is the most commonly encountered **Salmonella** infection. **Salmonella typhimurium** is frequently isolated but hundreds of other species are also known to cause this condition. With the exception of patients at the extremes of life, where salmonellosis may be life threatening, most cases of gastroenteritis are of short duration. Therefore the possibility of a serological diagnosis is minimized since the appearance of detectable levels of **Salmonella** agglutinins in patient's serum usually occurs after recovery. For this reason specific diagnosis is obtained only by culture.

The organisms cause disease in man when they are ingested with contaminated food or drink. With the exception of a few species that are indigenous to man, notably **Salmonella typhosa**, **S. paratyphi**, **S. schottmulleri** and **S. hirschfeldii**, infections are the result of species from lower animals reaching man.<sup>2</sup> Divers epidemiological studies have shown the chain of infection, to be very complex. The organisms responsible for a human infection or an epidemic, may have originated in the grain and have been propagated or transferred through a series of steps involving one or more domestic meat animals. Contamination may continue to a slaughter house, through the packing or dressing operation and into the kitchen of the victim, ultimately reaching the human host on or in a type of food perhaps never before related to **Salmonella** disease. Fresh poultry, meat and dried egg products have most frequently been found contaminated with **Salmonella** in the past although the recent practice of packaging frozen, ready to eat food is now contributing to the increased incidence of **Salmonella** infections in humans.

A **presumptive** identification of salmonellosis can be expected from the laboratory within 24 hours, and surely by 48 hours. Rarely, possibly in 2% to 3% of the instances where isolates are presumptively identified as **Salmonella**, a coliform organism will be found resembling **Salmonella** and the presumptive report will be in

(Continued on Page 58)





## ANTI-MALPRACTICE LEGISLATION — WHAT IS THE NEED? ? ? ?

By  
John B. Gregg, M.D.

At the September 1969 meeting of the Commission on Legislation and Governmental Relations of the SDSMA it was the considered opinion of the Commissioners assembled that current trends in legislation to assist physicians in combatting nuisance malpractice lawsuits should be studied carefully by the SDSMA.

When compared to the physicians in many states South Dakota physicians are very fortunate in the low incidence of lawsuits for malpractice which are filed in this state. Hopefully, this might be explained on the basis of highest quality medical care. However, despite the excellence of care given in each instance and the quality of therapeutics, sooner or later each practitioner will have a result which is less than optimum. These borderline results will always be potential sources of conflict, possibly in the courts. Unfortunately in some states there have been increasing numbers of medical lawsuits based upon flimsy evidence, apparently filed with the hope of recompense for some damage, real but trivial or fictitious. In the eyes of the law, each man may have his day in court. If the purported damages to the plaintiff are not sustained by the court or the jury, nothing is done in the way of recompense to the defendant for his time lost, expenses incurred in his own behalf, and for any hardship which he may have endured due to the unjustified lawsuit. In some instances countersuits for damages have been

filed by the defendant in the original suit and won. However, this is costly and time consuming. A few trial lawyers in this country may be responsible for much of this problem in that they take flimsy cases on contingency with the hope for at least a settlement out of court whereby they can receive compensation for minimal effort. Until this portion of our legal system can be revised, some other method for the elimination of lawsuits having questionable merit will have to be found.

The California legislature recently passed an interesting law (S.B. 943, 1969), effective in September 1969, under which persons who bring malpractice actions against physicians will "furnish a written undertaking with at least two sureties in the amount of five hundred dollars (\$500) each, as security for costs of defense which the court may determine and award to any such defendant in the event the claim is determined to be without legal merit or frivolous." In theory this law promises hope to the medical men of California in their wild malpractice lawsuit situation and will be welcomed by all physicians as a possible prototype for similar legislation in other states. However, until its test in the courts this law will not be a guarantee against lawsuit, will not assure the accused of total recompense for his time and hardship if he wins the case, and possibly may be ruled not constitutional.



Close scrutiny reveals that this law discriminates against a large segment of the population, namely the poor, those who do not have the wherewithal to post the required bond, despite the fact that there may be merit in their complaint. This one factor could invalidate the law. Undoubtedly this will be changed in the future. Another shortcoming of the law is that it is basically class legislation, a factor which may stimulate antagonism with the general population. It is legislation on behalf of and for the benefit of only "professional" persons of California.

Although South Dakota now has a very low incidence of malpractice actions, this may not always be the case. To employ an old axiom, it might be wise to lock the barn door before the horse is stolen. Also, it might be prudent to observe the course of the California law for an interval once it is put into effect and after it has had its test in the courts. Its shortcomings could then be modified and written into law for other states.

However, it might be possible to control nuisance or frivolous litigation aimed at physicians more easily by involving the entire population of this state. A law allowing the court to award to the defendant in a lawsuit in which the plaintiff failed to recover damages, his cost of litigation plus recompense for time lost, would be a definite step in the right direction toward the prevention of nuisance suits. The precedent for this already exists in the federal courts. This law might have even greater impact if the trial lawyers who took the cases were made personally responsible in the instance they lost the case through poor judgment or error (? malpractice), as are the physicians who may have a less than optimum result in treatment. Needless to say, such legislation would not receive accolades from trial lawyers. However, it might temper judgment as to what type of case is considered for trial in the future and discourage frivolous litigation.

Such a law would benefit all service professions, business or other groups having the potential to be open to nuisance litigation. This would include the dentists, veterinarians, stock growers, hospitals, nursing homes, the lawyers themselves, and even persons involved in automobile accidents. Much thought should be given to the matter by the SDSMA and perhaps liaison be made with other professional groups in this state to initiate introduction of a bill into the legislature soon.

It is contemplated to have a combined meeting of the SDSMA and the State Bar Association in the not too far distant future. This subject could be most timely as a round table discussion by the law-medical participants, perhaps to the betterment of both groups and their inter-relationships.

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### Medicine — Legal — Ethics

(Continued from Page 49)

#### MENTAL COMPETENCE TO STAND TRIAL REFUSAL OF PRETRIAL PSYCHIATRIC EXAMINATION UPHELD

A man accused of robbery was not entitled, as a matter of right, to a pretrial psychiatric examination to determine his sanity, the Supreme Court of Appeals of Virginia ruled. It was clear from the statute that such an examination was not mandatory but was a matter within the trial court's discretion. There was nothing in the record indicating that the trial court had abused its discretion. The trial court had before it a letter dated nine years earlier in which a physician stated, on the basis of his examination of the accused, who was then 13 years old, that the accused was then functioning on a clearly psychopathic level but was not committable either as psychotic or mentally retarded. The accused's mother, a trained nurse, testified that, although he had previously been committed to two mental institutions, she believed that the accused's biggest problem was lack of education. She also stated the opinion that he knew the difference between right and wrong.

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#### PathCAPsule—

(Continued from Page 52)

error. Serotyping of the organisms may take a day or two longer but this should not be a disadvantage since the physician is already alerted that his patient has a **Salmonella** infection. The final report will be of more value from an epidemiological viewpoint and the physician may be surprised to learn that one or more serotypes were isolated from his patient.<sup>3</sup> If follow-up cultures are taken, the organisms may be shown to persist in the patient for several months following treatment and recovery.

#### REFERENCES

1. **Identification of Enterobacteriaceae**, P. R. Edwards and W. H. Ewing, Burgess Publishing Company, Minneapolis.
2. **Bacterial and Mycotic Infections of Man**, 4th edition, R. J. Dubos and J. G. Hirsch, J. B. Lippincott, Philadelphia.
3. **Personal Communication**, R. F. Gray, St. Louis, Missouri.



# P R E S I D E N T ' S P A G E



An air of complacency surrounds many of the physicians of South Dakota! It has been enlightening, and alarming to visit the various areas of the State and find that the majority of our members are quite ill informed about the present status of the private practice of medicine.


The practice of medicine, as we know it, is being challenged and maligned. Legislation and directives to curtail it are constantly being introduced and ordered. It is important that we, as an **organized group**, remain well informed on the vital issues. We must be cognizant of what Regional Medical Programs — Department of Health, Education & Welfare — Comprehensive Health Planning — Public Health — American Association of Medical Colleges — American Medical Association — and your State Medical Association — are doing!

Each district Society must become extremely **active**. **Routine meetings** at frequent intervals must be a reality.

Individuals must become informed and must discuss the problems of economic medicine, as well as the scientific problems facing us in this rapidly changing world.

R. H. Quinn, M.D.  
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**News Notes • Changes • Births • News**

## **Pop's Proverbs**

The more "facts" I hear,  
the less I am sure of.

The American College of Physicians held a regional meeting in association with the South Dakota Society of Internal Medicine at the School of Medicine in Vermillion. New officers for the Internal Medicine Society include **H. Streeter Shining, M.D.**, Rapid City, President; **W. O. Rossing, M.D.**, Sioux Falls, President Elect; and **Mario L. Herrera, M.D.**, Aberdeen, Secretary.

**Hugo Andre, M.D.**, Dallas, Texas, died at the age of 61 on September 27. Dr. Andre was associated with the Veterans Hospital in Dallas at the time of his death. He practiced in Vermillion from 1935 to 1966.

**Arthur S. Jackson, M.D.**, Rapid City, died September 16 at the age of 92. Dr. Jackson practiced medicine in South Dakota from 1902 until his retirement in 1950. He was a life member of the American College of Surgeons and a member of the Black Hills District Medical Society, the State Medical Association and the American Medical Association.

**R. H. Quinn, M.D.**, President of the South Dakota State Medical Association made his official visitation to the Seventh District Medical Society on Tuesday, September 2. **Dr. Knabe**, Dean of the Medical School, also attended this meeting along with 55 members of the Seventh District. Dr. Knabe discussed the financial problems of the Medical School and Dr. Quinn discussed the use of physician peer groups and other matters of interest to the physicians.

\* \* \*

**John D. Freeman, M.D.**, and his wife, formerly of Miller, will begin their missionary work in Bongkla, Thailand, where he will practice at the Baptist Hospital.

**YOUR  
CONTRIBUTION  
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IS NEEDED.**

The Tobin Clinic in Mitchell has announced the association of **Ernest Schabauer, M.D.** with their group. Dr. Schabauer is a general practitioner from Plainview, Nebraska.

\* \* \*

Local physicians participating in a Coronary Care Unit Program at the Methodist Hospital in Mitchell included **Jack Berry, M.D.**, **W. D. Delaney, Jr., M.D.** and **Bernhoff Skogmo, M.D.** **Warren Jones, M.D.**, Sioux Falls, was chairman of the conference.

\* \* \*



**G. Robert Bartron, M.D.**, Watertown, was honored by the Medical School Endowment Association for his efforts at the legislative level in securing the appropriation for the addition to the Medical School at the University. **E. H. Peters, M.D.**, Sioux Falls, president of the Endowment Association, presented the Distinguished Service Award to Dr. Bartron during dedication ceremonies.





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## THE MONTH IN WASHINGTON

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A Food and Drug Administration advisory committee found oral contraceptives to be "safe," but reported that British and U. S. studies had established "an etiologic relation between thromboembolic disorders" and their use.

The Advisory Committee on Obstetrics and Gynecology, making its second report on oral contraceptives, said that their benefits outweighed the risks sufficiently to designate them "safe" within the intent of the federal law.

As for the potential carcinogenicity of oral contraceptives, the report said no conclusion could be drawn at this time.

The committee called for intensive research along three lines: 1) possible relationship of hormonal contraceptives and carcinoma of the breast and uterus; 2) determination of the basis and prognosis of metabolic alterations produced by hormonal contraceptives; and 3) development of new methods of contraception.

The committee, in its initial report three years ago, approved of oral contraceptives with reservations. It now said that these reservations appear to have been justified because of the adverse reactions reported in both scientific literature and the general press. But the report concluded:

"When these potential hazards and the value of the drugs are balanced, the committee finds the ratio of benefit to risk sufficiently high to justify the designation safe within the intent of the legislation (Kefauver-Harris Amendments of 1962)."

The report said scientific studies "suggest that the mortality from thromboembolic disorders

attributable to the oral contraceptives is about three per 100,000 women per year, adding less than three per cent to the total age-specific mortality in users of these drugs." In a U. S. study, the risk of thromboembolism to a woman using hormonal contraceptives was estimated by indirect methods to be 4.4 times that of a non-user.

The report said there is no evidence that any metabolic alterations induced by the oral contraceptives pose serious health hazards.

The effectiveness of oral contraceptives was found to be significantly higher than for intrauterine devices or traditional methods.

\* \* \*

Abandoning a long court fight, the Internal Revenue Service reversed itself and ruled that organizations of physicians authorized under state professional association laws will be treated as corporations for tax purposes.

The IRS announced that it would not appeal to the Supreme Court two recent decisions by U. S. courts of appeal favoring the professional association. In accordance with these court decisions, the IRS said, "organizations of doctors, lawyers and other professional people organized under state professional association acts will, generally, be treated as corporations for tax purposes."

Forty-two states have such laws which offer tax benefits, including deferment of the tax on pension plan contributions until retirement.

The court controversy over IRS treatment of the professional associations for tax purposes dated back to the early 1950's. It was given a "Kintner" label in 1954 when an appeals court



ruled in favor of the professionals in a case brought by Arthur Kintner, M.D., Missoula, Mont.

\* \* \*

The federal government has started a program designed to increase enrollment in the nation's schools of medicine and osteopathy by 4,000 over the next four years.

Known as the Physician Augmentation Program, the activity, under the Department of Health, Education and Welfare, supports the addition of 1,000 first year places commencing with the fall term of 1970. These places are in addition to any increase to which the schools have already committed themselves. Total enrollment through this program is expected to be about 4,000 in the fourth year of operation. The Physician Augmentation Program is authorized under the Health Manpower Act of 1968.

Grants will be awarded on a national competitive basis to those schools of medicine and osteopathy that document their intention to institute a major increase in their first-year enrollment and that appear to have the greatest potential for achieving major increases with their own resources as supplemented by funds allocated by the program.

\* \* \*

Robert H. Finch, secretary of Health, Education and Welfare, proposed that state medicaid administrators work more closely with state medical societies on cost control in the federal-state health care program.

He also said that the states should review more claims in efforts to control medicaid costs.

Finch gave his views on controlling medicaid costs in a letter to Sen. Abraham Ribicoff (D., Conn.) who had asked what was being done and what additionally could be done about rising expenditures in the program.

In answer to a question as to what states "could be doing under existing law to control medicaid costs more efficiently," Finch said:

"One answer is to spend more money on the claims review function. For example, there are two states where annual medicaid expenditures are in excess of one hundred million dollars. One employs seven people for its review function, the other employs seventy. The latter state has very effective control over costs and utilization.

"But I am coming to believe that a major factor is the degree to which physicians are involved in the program, not simply as purveyors

of medical care but also as watchdogs of costs and guardians of quality. They generate the bulk of medicaid expenditures. They authorize admissions to hospitals and skilled nursing homes and they write prescriptions. The need for genuine physician participation in controlling costs is self-evident. A state medicaid administrator would be well advised to make extensive use of his medical advisory committee and to engineer the plan in detail through the state medical society."

As to what states already are doing, Finch said:

"Some states are using prior authorization of service (emergencies excepted). Some use fee schedules. Some use audit tolerance levels. Some incorporate parameters of medical care into their data processing systems. Some develop client and purveyor profiles. Some use computers to process claims. Others contract the review function to a fiscal agent, e.g., a Blue Cross plan. Some use a medical audit and some have been doing very little."

Ribicoff said in his letter to Finch that he understood "there is very uneven performance of medicaid program review throughout the nation."

Peer review under leadership of state and county medical societies has top priority in the American Medical Association recommendations for controlling costs in both medicaid and medicare. A report of the AMA board of trustees approved by the house of delegates at the 1969 annual convention in New York strongly urged that:

—"Peer review be assigned the highest priority by the state and county medical societies; that where existing mechanisms exist, they be strengthened, and where they do not, they be promptly established.

—"Quick and decisive action be taken, in appropriate fashion, to discipline those few physicians determined after investigation to be abusing medicare and medicaid, either fraudulently or otherwise."

The AMA recommendations for cost control in government health programs also include:

—"The promotion of innovative health service delivery systems for low income communities with emphasis on ambulatory care.

—"Programs by local medical societies to insure preservation of quality health care in the face of cost containment measures."



## DIRECTORY

THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION  
Organized 1882 711 North Lake Avenue  
Sioux Falls, South Dakota 57104

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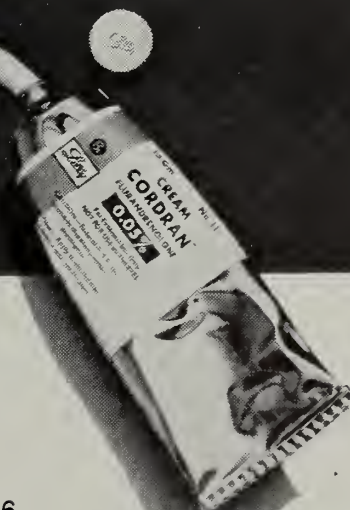
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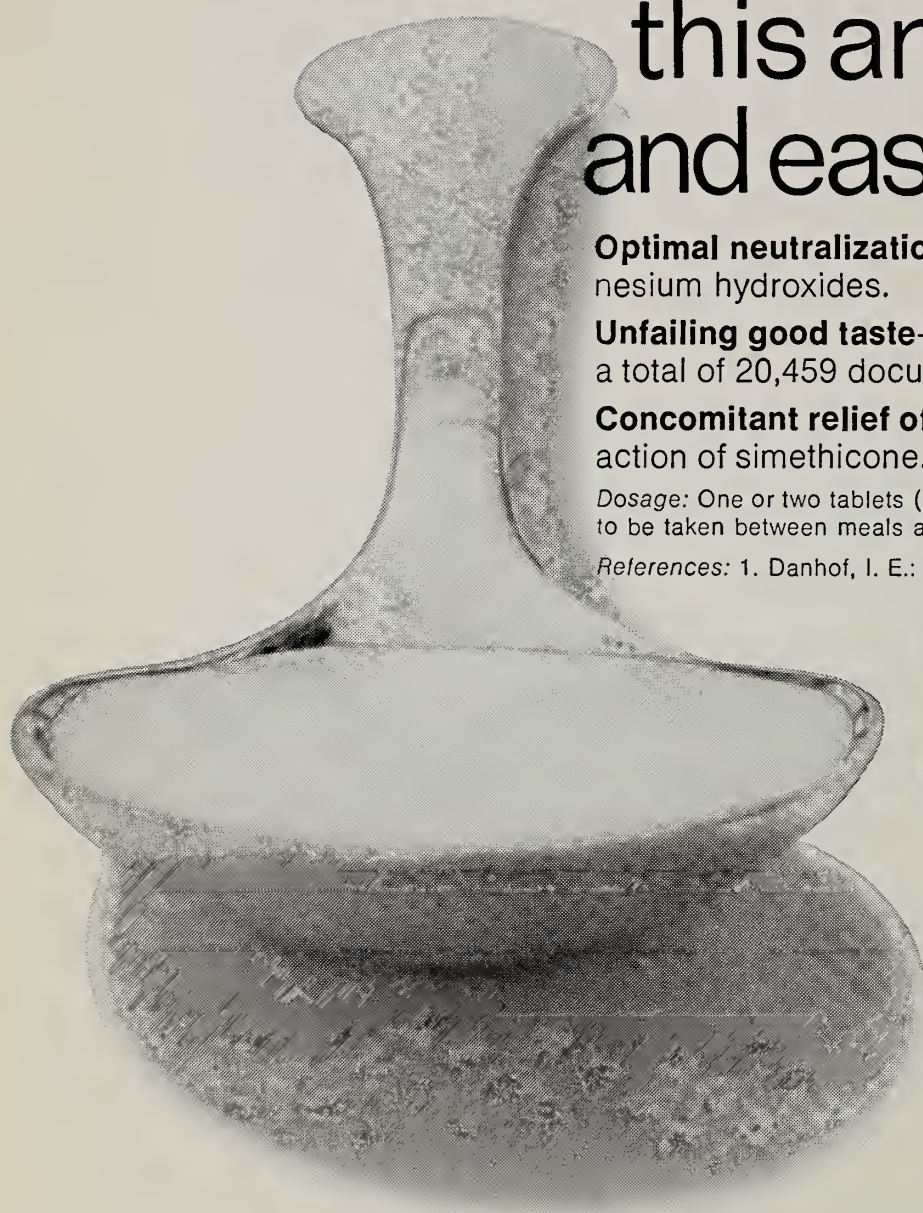
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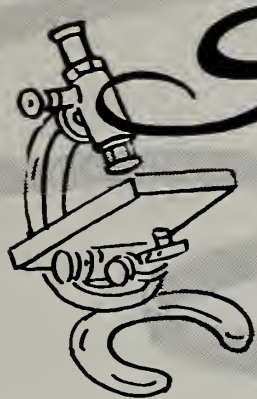
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# Scientific PAPER

## THE DIAGNOSIS AND SURGICAL TREATMENT OF RENOVASCULAR HYPERTENSION\*

F. K. Merkel, M.D., H. Buchwald, M.D., and J. S. Najarian, M.D.

Hypertension is a major cause of morbidity and death in the United States and in many other countries of the world. Although there is no known etiology for most cases of hypertension, a number of specific and correctable conditions causing hypertension must be looked for before instituting medical control of high blood pressure.

In 5 - 10% of all patients with hypertension, renal pathology is the cause and many of these patients are thus amenable to surgical cure of the hypertension. Thus drug therapy which often controls renovascular hypertension poorly can be avoided. The lesions that can be corrected by vascular repair of the renal vessels are those of atherosclerosis, fibromuscular hyperplasia, and renal arterio-venous fistulas.

The presence or absence of renal hypertension is determined by a careful history, physical examination, and selected laboratory studies.

**History** — The duration of the patient's hypertension is important for renovascular hypertension is most successfully treated in the young patient with hypertension of short duration. A

family history of hypertension is helpful in establishing a diagnosis of essential hypertension. The presence of cerebrovascular, coronary, or peripheral vascular problems in the patient and his relatives is ascertained and history of diabetes in the patient or family may also contribute to the total picture. The patient's age is of interest because patients with correctable renal artery stenosis vary from 20-50 years.

**Physical Examination** — Blood pressure is recorded standing, sitting, and lying down on numerous occasions to determine if a sustained diastolic hypertension is present. The fundic examination is done to obtain evidence of arteriosclerotic and hypertensive retinopathy. The peripheral vessels including the carotid arteries, abdominal aorta, femoral, popliteal, and pedal arteries are examined for presence and equality of pulses, and auscultation for bruits is carried out. The bruit of renal artery stenosis is heard best with the bell of the stethoscope near the midline and occurs in about 30% of patients with renal stenosis. Evidence of ischemic changes in the limbs may also be noted because renal artery stenosis of the atherosclerotic type is frequently associated with generalized occlusive disease of the rest of the peripheral vessels.

**Laboratory Studies**—A complete blood count, urinalysis, glucose tolerance test, and serum

\* Presented by John S. Najarian, M.D. at the 88th Annual Meeting of the South Dakota State Medical Association, Watertown, South Dakota, June 10, 1969.

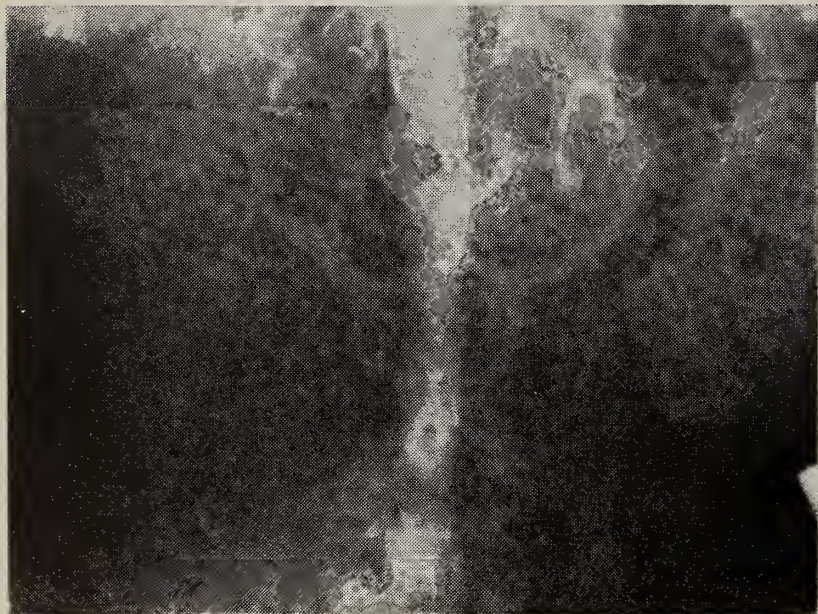
Supported in part by USPHS 1 PO 1 AM-13083 and 1 RO 1 HE-11901. From the Department of Surgery, University of Minnesota Medical School, Minneapolis, Minnesota 55455.



cholesterol are obtained. Serum sodium, potassium, and carbon dioxide content are also checked. Hypokalemic alkalosis suggests the presence of a secondary aldosteronism resulting from activation of the renin-angiotensin mechanism which is sometimes seen in renovascular hypertension.<sup>2</sup> The blood urea nitrogen, serum creatinine, and creatinine clearance offer information as to renal function. The operative procedure is dangerous and the chance of reversing hypertension is much less in patients who are markedly uremic; however a mild elevation in BUN or creatinine may indicate a more urgent need for repair of the renovascular lesion to prevent further progress of renal insufficiency.<sup>9</sup> An EKG is obtained as well as PA and lateral chest x-rays to look for evidence of cardiomegaly and rule out a coarctation of the aorta. Skull x-rays may rule out a pituitary or brain tumor.

A rapid sequence IVP may be the most informative lab test performed. In addition to determining morphology and function, the IVP is considered positive for renovascular hypertension if the kidneys differ in size by more than 1.5 centimeters or if there is a difference in time of onset of excretion of dye, and if the concentration of dye excretion is diminished in one kidney.

Figure 1



The aortogram of the patient described in the text shows stenosis of the right renal artery near its take off from the aorta, typical of atherosclerosis. Note the post-stenotic dilatation.

Adrenal tumors are ruled out by 24 hour urinary catecholamines and the vanillyl mandelic acid (VMA) studies. If hypercholesterolemia is present, evaluation of the serum phospholipids, triglycerides, total lipids and lipoprotein electrophoresis is also carried out.

A renogram is obtained and is considered positive if there is a unilateral decrease in the rate and magnitude of uptake in the arterial phase and if there is delayed excretion of the  $I^{131}$  hippuran. At the University of Minnesota Hospital, computer analysis of the renogram is done to eliminate extraneous pick up of radiation from the rest of the body especially the bladder.<sup>4</sup> By this technique renograms of various areas of the kidney can be analyzed separately and localized ischemia can be delineated.

An aortogram is done if the preceding history, physical examination, or laboratory studies suggest renovascular hypertension. A constriction localized to the take off of the involved renal artery, sometimes with poststenotic dilatation, is the usual finding in renovascular hypertension secondary to atherosclerosis. When fibromuscular hyperplasia is the cause, beading of the renal artery is most commonly seen in the middle and distal third of the main renal artery and occasionally will be seen extending out to its secondary divisions.

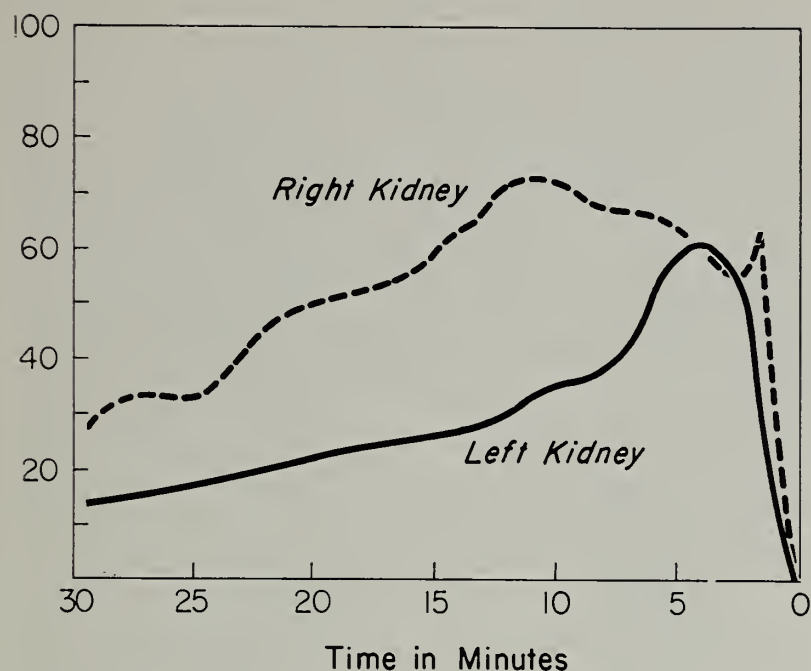
Renin levels are measured in samples taken from both renal veins and a peripheral artery. This is done pre-operatively via a catheter placed percutaneously into the inferior vena cava and manipulated into each renal vein orifice. If the study is positive, the renin output of the affected side will be two or more times larger than the uninvolved side and the peripheral artery. This test is most effective if the patient has been on a low salt diet, receives diuretics daily, and the samples are drawn from the renal veins with the patient tilted into the standing position. When the renin assay test is positive, the predictability of correction of hypertension can be 90 - 95% accurate.

Split renal function studies such as the Howard,<sup>3</sup> Stamey<sup>12</sup> or Rappaport<sup>10</sup> tests may be helpful. In such tests, the urine volume and sodium content is usually decreased at least 30% on the affected side. Para-aminohippuric acid excretion of the affected kidney is two or more times that of the normal side. Although these tests have been helpful in the past, the renogram, rapid sequence IVP, and renin levels have provided more accurate diagnostic evidence of renovascular disease. In addition, the split renal function studies involve the potential of introducing infection; we have abandoned their use as part of the diagnostic work up.

Operative renal biopsies may be obtained on the basis that should nephrosclerosis be present in the non-corrected side and hypertension persists after the revascularization operation,



**Figure 2a**  
Renogram



The pre-operative renogram on this patient reveals a delay in the secretory peak which is reached at twelve minutes on the right as compared with three minutes on the left, or normal side.

nephrectomy of the "normal" or contralateral kidney might be carried out.<sup>8</sup> Preoperative biopsy studies have not been shown to be useful at present.

The steps followed in establishing the diagnosis of renal hypertension are listed in Table I.

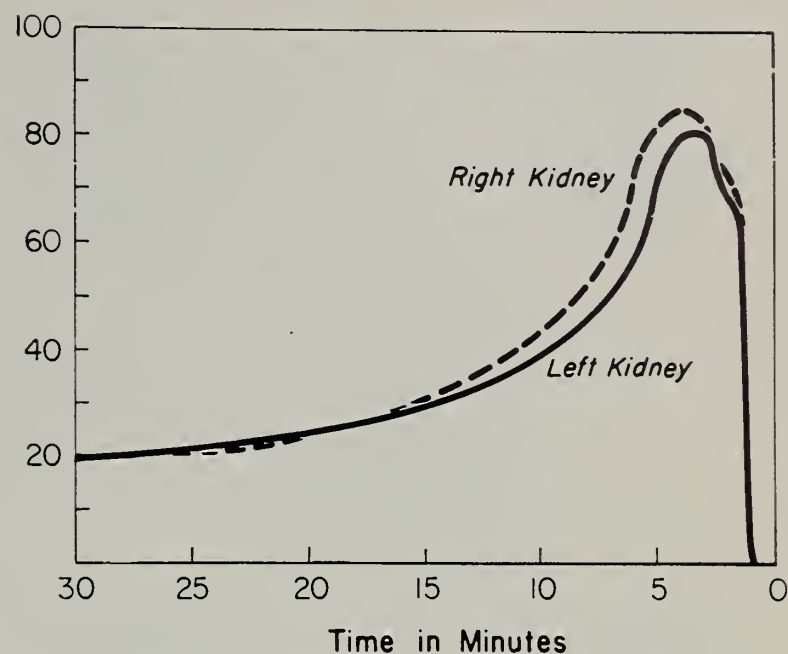
**Table I.**

THE DIAGNOSIS OF RENAL HYPERTENSION

HISTORY	A. Relatively short duration
	B. Age: 20 - 50
	C. Strong family history of hypertension
PHYSICAL EXAM	A. Abdominal bruit
	B. Other evidence of vascular disease
LABORATORY STUDIES	A. Serum electrolytes, cholesterol, BUN
	B. Rapid sequence intravenous pyelogram
	C. Renogram
	D. Aortogram
	E. Renal vein renin
	F. Split renal function studies (optional)
	G. Bilateral needle biopsies of kidney (optional)
OPERATIVE FINDINGS	A. Measurement of pressure gradients (optional)
	B. Bilateral biopsies (optional)

**Operative Procedures** — Patients who have demonstrated renovascular hypertension are considered for surgical correction of the condition. Those generally excluded from operation are patients who are uremic, aged (over 65 years), or are severely ill from other causes. We favor endarterectomy of the renal artery stenosis for atherosclerotic occlusive disease. This procedure is done from within the lumen of the aorta via an aortotomy (transaortic approach). fig. 4. Should the disease involve both renal

**Figure 2b**  
Renogram



The postoperative appearance of the renogram after correction of the renal artery stenosis is now normal. Both kidneys exhibit maximum secretion at four minutes.

arteries, bilateral renal endarterectomy is easily accomplished via this approach. If there is aorto iliac occlusion as well, this technique can be combined with aorto iliac endarterectomy or bypass. Bypass of the obstruction with vein or autologous arterial grafts or use of patch grafts has occasionally been necessary to correct stenoses caused by arteriosclerotic plaques.

Fibromuscular hyperplasia involves a larger portion of the renal artery; in such cases the entire stenotic portion is excised and the remaining distal renal artery is anastomosed to the proximal artery or connected to the aorta with an autologous artery or vein bypass graft.<sup>14</sup>

Renal A - V fistulas can be closed with preservation of the kidney and cure of hypertension by suturing the fistula from within the venous side of the communication if the fistula is located outside of the kidney. If the fistula is within the kidney, partial or total nephrectomy becomes necessary.

Nephrectomy may also be useful in hypertension arising from unilateral renal disease secondary to non-arterial causes, especially if an ischemic pattern is seen on the work up.<sup>5</sup>

The following recent case illustrates the typical work up and therapy for a patient with renovascular hypertension.

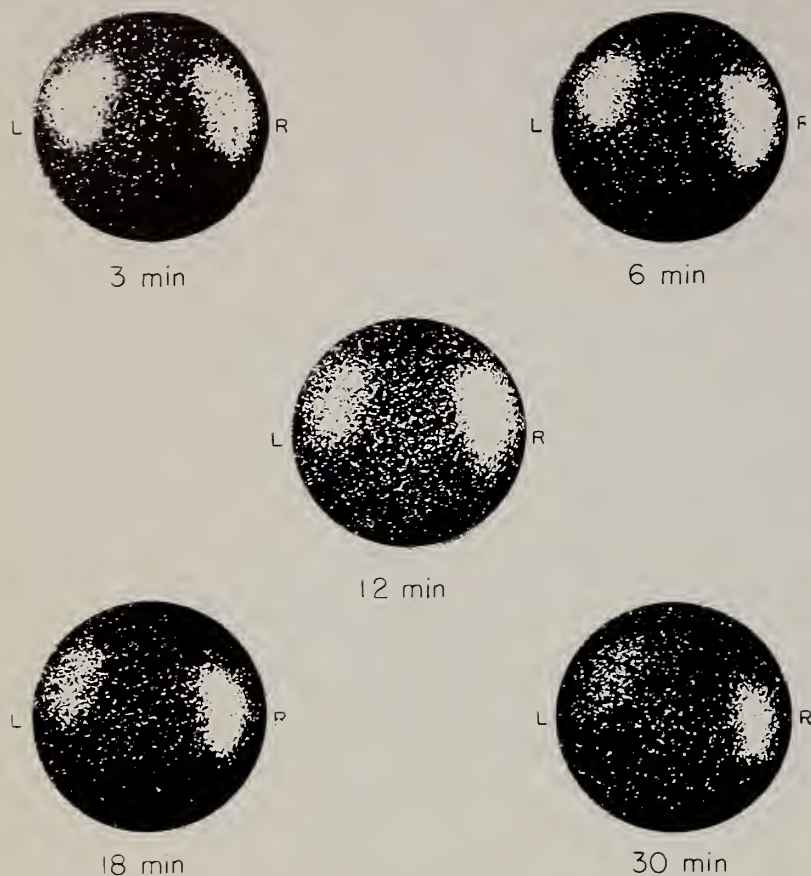
**Case Report**

Mr. R. W. is a 47 year old white male admitted for evaluation of anginal-type attacks of 4 years duration and hyperlipidemia. The onset of



Figure 3a

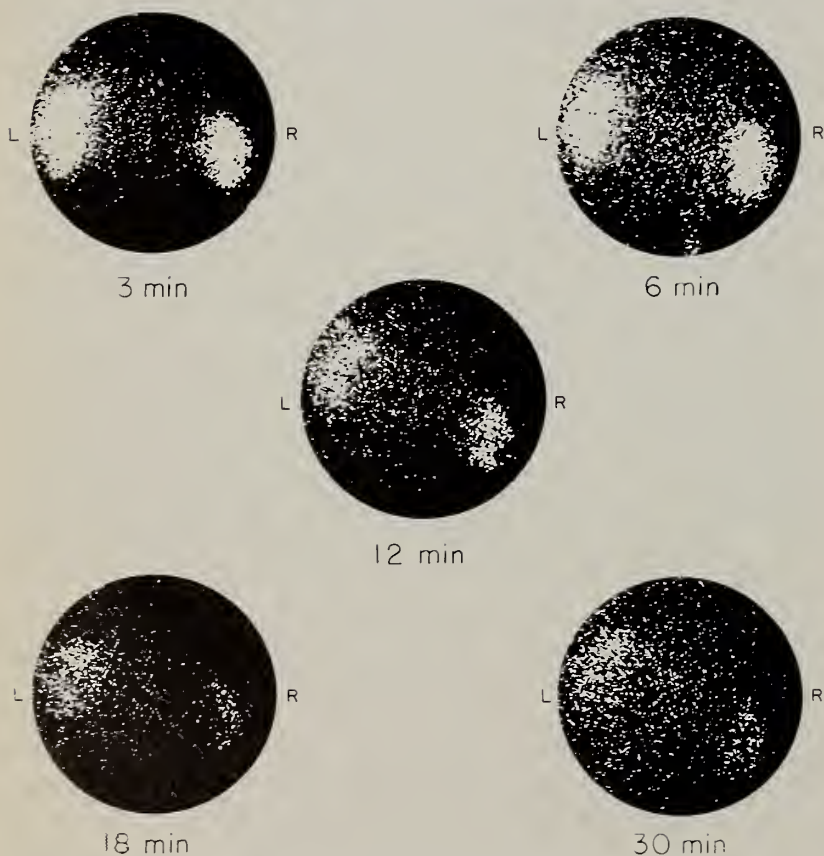
## RENAL SCANS



Renal scans were taken during the course of the renograms using the radiation from the  $^{1131}$  hippuran. However, the right kidney has just achieved maximum concentration. At thirty minutes, excretion is complete on the left and is still continuing on the right.

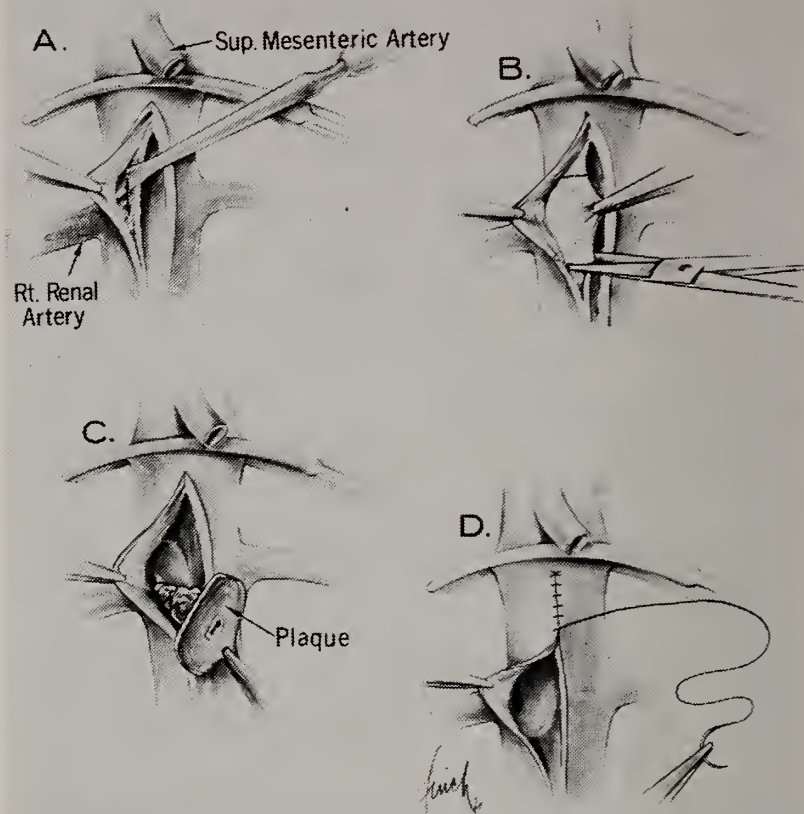
Figure 3b

## RENAL SCANS



The postoperative renal scans show that both kidneys achieve maximum concentration by three minutes and have excreted most of the dye by twelve minutes. Excretion is complete by both kidneys at thirty minutes.

Figure 4

TRANSAORTIC ENDARTERECTOMY  
OF THE RIGHT RENAL ARTERY

The transaortic approach for renal endarterectomy used in the patient described in the paper is shown.

Figure 4a

The aorta is cross clamped above the renal arteries and a longitudinal aortotomy is made. The intima of the aorta is elevated and the dissection carried through the renal artery orifice.

Figure 4b &amp; c

A patch of the intima from the aorta is removed with the renal artery plaque.

Figure 4d

The aortotomy is closed.

hypertension was noted four months prior to admission. There was a family history of hypertension and myocardial infarctions.

Physical examination revealed a moderately obese male with a blood pressure of 200/135, and a pulse of 80. Periorbital xanthelasma were present. Fundoscopic examination revealed 2+ A - V nicking. Heart sounds were unremarkable without cardiac murmurs. There was a soft bruit heard over the mid abdomen. Peripheral pulses were excellent.

Laboratory studies revealed a normal CBC. Fasting blood sugar was 85; BUN was 24 and creatinine 1.1, with a creatinine clearance of 142/ml/min  $1.73 \text{ m}^2$ ; there was no proteinuria; serum sodium was 140 and serum potassium was 4.0; bicarbonate was 33.0, uric acid was 8.5, serum magnesium was 1.9, twenty-four hour catecholamines were 82 mEq (normal up to 103 mEq). Vanillyl mandelic acid was 2.8 mg/24 hrs. (normal 7 - 6.8 mg). The serum cholesterol was 639 mg%, phospholipids were 524 mg%,



triglycerides were 1274 mg%, and total lipids were 2725 mg%. The lipoprotein ultracentrifugation fraction Sf 0-12 was 223 mg% and the Sf 12-400 lipoprotein fraction was 1465 mg%. Serum lipoprotein electrophoresis showed predominant staining of the pre-beta band characteristic of the Fredrickson Type IV hyperlipidemia.

The vectorcardiogram revealed left ventricular hypertrophy. An IVP was normal. Split renal function tests were not done. Aortography revealed stenosis of the right renal artery with post stenotic dilatation, fig. 1. The left renal artery was normal. There was an occlusion of the right coronary artery and an arteriosclerotic plaque in the distal aorta. A special renogram revealed a delay in uptake and excretion on the right and normal function on the left (fig. 2a & 3a). Renin levels were 240 mg/10 c.c./3 L for the right renal vein, 66 mg/10 c.c./3 L for the left renal vein, and 50 mg/10 c.c./3 L for the arterial sample. This gave an A-V ratio difference of 12:1.

**Hospital Course:** The patient underwent exploratory laparotomy at which time the pressure gradient was measured across the stenotic lesion. The aortic pressure was 175/120 while the right renal artery pressure was 50/30. A palpable thrill was present in the artery. A right renal endarterectomy was carried out through an aortotomy, fig. 4 and following this the gradient was abolished. The aortic pressure was 140/90 and the right artery pressure was 135/80. The distal 200 cm of small bowel was bypassed according to the procedure of Buchwald.<sup>1</sup> The operation was well tolerated and within 2 hours of its completion the blood pressure was 140/80 and at present is 130/90. The serum cholesterol is now 159 mg% and the triglycerides are 230 mg%. The repeat renogram is now normal. fig. 2b & 3b.

#### Discussion

It is vitally important that when patients are seen with hypertension a careful search be made for evidence of curable causes for this problem. For if a curable cause of hypertension should be overlooked the patient may be condemned to years of continuous and occasionally progressively ineffective drug therapy. Drug therapy not only imposes the burden of constant medication and the expense of examinations by the physician, but also rarely controls the pressure perfectly. Often, patients with curable causes of hypertension respond less well to medications than patients with essential hypertension.

The diagnosis of renovascular hypertension is made from the history, physical examination and the laboratory studies. It must be considered in a young person (20-50 years) with recent onset of high blood pressure. Arteriosclerotic renal artery stenosis is the most frequent cause of renovascular hypertension and is more common in men (1.5:1), whereas fibromuscular hyperplasia is seen more frequently in women (9:1 ratio). Almost one half of all patients with renal artery stenosis have bilateral disease.

The rapid sequence IVP and the renogram are helpful in determining renal ischemia but the aortogram is the key test in making the diagnosis of renovascular lesions and their type. Once the diagnosis is established, the therapeutic approach must be decided.

An operation is most favorable for patients with fibromuscular hyperplasia. In most series close to 95% of those operated on for this condition were either cured or had improved after revascularization. The results are not quite as good in the patient with arteriosclerosis; however, 70-80% of these patients will benefit from a direct vascular procedure.<sup>2</sup> The fall in blood pressure frequently occurs immediately following adequate revascularization but occasionally improvement or cure takes as long as several months. A clear majority of the patients will become normotensive after operation, but in addition, a majority of those patients who do not become normotensive will be easily controlled with drugs after operation, whereas prior to surgery, the hypertension was poorly regulated. Most failures are either due to technical problems such as thrombosis of the endarterectomized segment, progression of the renal disease to an irreversible point, or errors in diagnosis. These problems occur infrequently in the hands of surgeons experienced in the management of this condition.

The difficulty in diagnosis is related to the fact that some of the laboratory tests used in making the diagnosis of renal artery stenosis are imprecise and false negatives and false positives are not infrequent. Smith found the IVP to be incorrect 30% of the time, with both false negatives and positives.<sup>11</sup> He found the radiorenogram incorrect or misleading 35% of the time, although false negatives are rare with this test. Split renal function tests were incorrect 40% of the time in his experience. The renin assay similarly was wrong 27% of the time and aortogram was misleading or incorrect 16% of the time. However, most investigators agree that



if the aortographic finding of renal artery stenosis is supported by the history, physical findings (bruit), and other laboratory studies (rapid sequence IVP, renogram, renin levels, or split function studies), few false positive diagnoses will be made. If these studies are positive, only rarely should a patient be denied an operation which will cure his hypertension.

Nephrectomy should be avoided if possible in order to conserve renal mass and frequently the kidney with the renal artery stenosis is the "protected" and thus the better of the two kidneys. However, there still remains a place for nephrectomy for cure of hypertension, i.e. small contracted pyelonephritic kidneys, arterial lesions which cannot be corrected, and similar conditions. Several authors have reported cures of hypertension by nephrectomy of the contralateral kidney after successful revascularization procedure.<sup>8, 13</sup> This procedure resulted in cure of hypertension because of the advanced nephrosclerosis involving the contralateral kidney. Kidney biopsies revealed the presence of advanced disease in the contralateral kidney but "protection" of the kidney on the side of the stenosis.

Renal arteriovenous fistulas produce a hypertension similar to that of renal artery stenosis and the diagnosis is made through a history of trauma and an aortogram demonstrating the lesion. Maldonado has shown that the fistula results in ischemic changes in the kidney distant to the lesion.<sup>6</sup> Nephrectomy has been the procedure used most widely for this condition but direct repair should be attempted to conserve renal tissue. This can be accomplished by approaching the communication through the vein and thus avoiding injury to the artery.<sup>7</sup> Branches of the renal vein can be ligated with impunity.

When hyperlipidemia is present in patients with renal artery stenosis secondary to a cholesterol plaque, it is clear that a treatment correcting both the anatomical problem and the elevated serum lipids would be desirable. We are, therefore, performing ileal bypass as well as endarterectomy in such patients.

#### Summary

Renal vascular hypertension is a curable form of hypertension that occurs in about seven percent of all hypertensive patients. It should be suspected in young adults with hypertension of recent onset. The diagnosis is made from the history, physical exam (bruit) and laboratory procedures including the IVP, renogram, renal vein renin levels, and the aortogram. The opera-

tion of choice by the authors for renal artery stenosis secondary to atherosclerosis is endarterectomy via an aortotomy. Seventy to ninety percent of carefully selected patients will benefit from surgical correction of this lesion.

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#### ANNOUNCEMENT

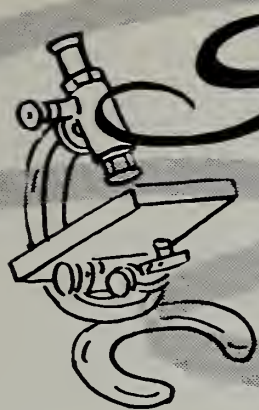
A five-day traineeship in obstetrics and gynecology is being offered at the University of Nebraska Medical Center, Omaha, December 8-12. It is designed to give the practicing physician a capsule review of newer treatments and clinically oriented technical procedures. It will include daily seminars, rounds, clinical experiences and informal discussions.

The fee is \$125.00. The course carries 40 hours of AAGP credit.

The course on computers in general practice scheduled for January 22 and 23 has been cancelled.

The second annual symposium on chronic respiratory diseases originally scheduled for April 22-24 has been re-scheduled for January 29 and 30.





*Scientific*

P A P E R

## TREATMENT OF CLEFT LIP-PALATE PATIENTS, THE SURGEON'S ROLE

J. B. Gregg, M.D.

In an embryo the nasomedial processes fuse with the maxillary processes to form the upper lip about 7 weeks after conception. The palatine processes of the maxilla join in the midline a short time later to form the roof of the mouth. Anything which interferes with the fusion of either of these sets of processes or causes dissolution in the areas of coalescence can lead to a congenital dehiscence. The deformity in the lip or palate may be quite obvious, or obscure, as in the instance of a submucous palatal defect, or merely a bifid uvula.

In depth studies indicate that congenital defects in the upper lip and palate are increasing in frequency in the general population. Although formerly these anomalies were thought to be inherited, recent data, both clinical and experimental, indicates that many other factors are influential in their production. Cortisone, some antihistamines and other drugs, dietary deficiencies, hyper and hypo-thermia in the mother during pregnancy, infectious processes, especially those of viral origin, and other factors, have all been implicated as causative for facial defects. Cleft deformities, particularly those of the palate, quite often accompany or are accompanied by other congenital anomalies.

Although some congenital abnormality affects approximately one out of sixteen children born in the U. S. today, the incidence of cleft lip or palate is about 1:800 births. Information obtained from the South Dakota Department of Health, Bureau of Vital Statistics,<sup>1</sup> based upon reports from the attending physicians, indicates that

during the 14 year interval 1950-63 the cleft lip-palate deformities occurred in 1:965 children born in this state. A comparison of the statistics at the beginning of this time interval and at the conclusion shows that facial clefts increased in this state from 1:1,781 to 1:668. This may represent better reporting but undoubtedly also reflects some actual increase in frequency.<sup>2</sup>

A study<sup>1</sup> of several large groups of Indian school children by a team representing the School of Medicine and the Speech and Hearing Clinic of the University of South Dakota showed that obvious cleft lip-palate defects occurred in 1:220, occult clefts (submucous, bifid uvula) in 1:149, so that the incidence in these Indian children of manifest and occult cleft combined is 1:89, a tremendously higher frequency than that reported in the **live birth data** for the state as a whole. Similar findings in regard to an unusually high incidence of facial clefts have been noted in Montana Indians.<sup>3</sup> Information obtained from anthropologists<sup>4, 5, 6</sup> who were familiar with the customs of the Plains Indians is to the effect that the primitive Indians eliminated unfit infants such as those having congenital facial defects by active or passive destruction. In a study of 2,186 specimens taken from primarily South but some North Dakota Indian burials (J.B.G.) there was not found a single specimen in which a definitely congenital anomaly of the palate or maxilla could be identified. This is contrasted to the Mexican Indians who apparently preserved as curios or good luck omens persons with congenital facial



defects.<sup>7</sup> Skulls from Mexican Indian burials and figurines made by previous cultures show probable congenital defects in persons who had existed well into adult life. The incidence of cleft lip-palate defects in Mexico today, from the data which is available, suggests that the incidence in the Indians is somewhat higher than the population as a whole.<sup>7</sup> On at least one occasion documented in the past two years there were repeated attempts made by a South Dakota Indian Mother to eliminate a newborn child which had a cleft lip and palate by abandoning the child in the hot Summer sun. The fact that the occurrence of this congenital problem is increasing in the state as a whole but especially in the Indian population should focus attention upon it both from the standpoint of treatment and also from the aspect of prevention.

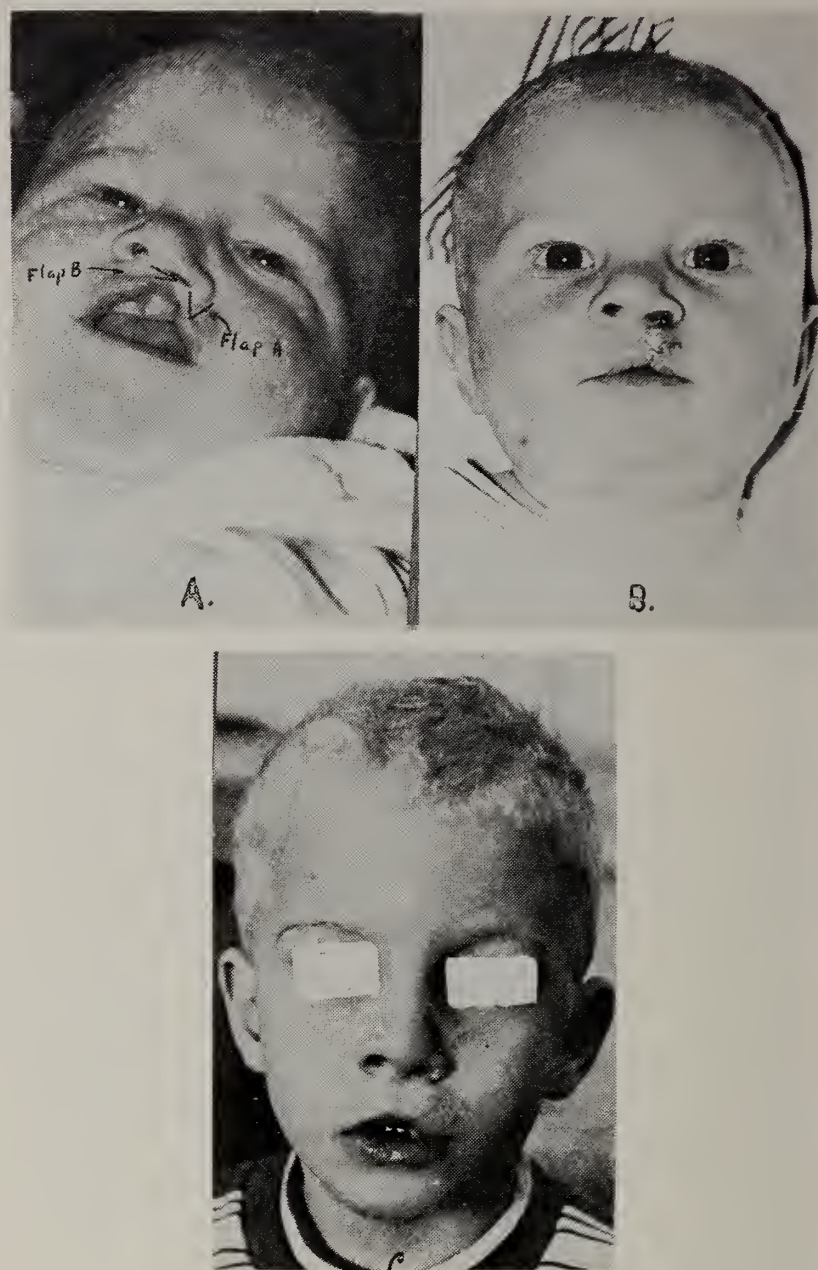
Until this problem has been reduced in frequency by genetic counseling and other measures, the persons affected by congenital facial defects will have to be treated by the physician, the dentist, the speech therapist, and others, so that they can be rehabilitated and take their place in society with minimum difficulty. The medical treatment of persons with facial cleft problems will be primarily within the province of the family physician, the pediatrician, the maxillo-facial surgeon, and the otolaryngologist. Surgical treatment falls into two large categories, the primary surgery to eliminate the defect and its complications insofar as possible, and **secondary procedures** used to improve the function or the cosmetic result for the patient. The actual resolution of the defect is often long and tedious, requiring multiple surgical procedures staged over a considerable interval. Much patience and serenity to withstand frustration is required of the patient, his parents, and the physician who embarks upon the treatment of these defects. In the instance of a large deformity the surgical treatment may take 18 years to complete.

#### PRIMARY SURGERY

1) **Lip repair.** One or both sides, one or more stages. It is usually not performed until about 6-8 weeks of age, but can be deferred for a longer time. Prompt repair is often necessary to assist sucking efforts and improve nutrition. It is best for the child to regain birth weight and start gaining, before surgery. Many different surgical techniques are available for the repair depending upon the type and severity of the lesion, and the experience and decision of the surgeon. Some modifica-

tion of the "Z" plasty is currently in vogue for the lip repairs.<sup>8, 9</sup> (See Figures 1, 2, 3).

Figure 1.



Three photos showing a unilateral cleft lip repair using a "Z" plasty. A. Shows the defect preoperatively with the triangular flaps sketched in to show their location. B. Demonstrates the post-operative result at the time of removal of skin sutures. C. Illustrates the lip and nose at about 5 years of age. Note that there is very little residual defect.

Figure 2.



Pictures showing the pre and post-operative findings (2 months later) of a child with a wide, unilateral cleft lip. A "Z" plasty operation was employed here.

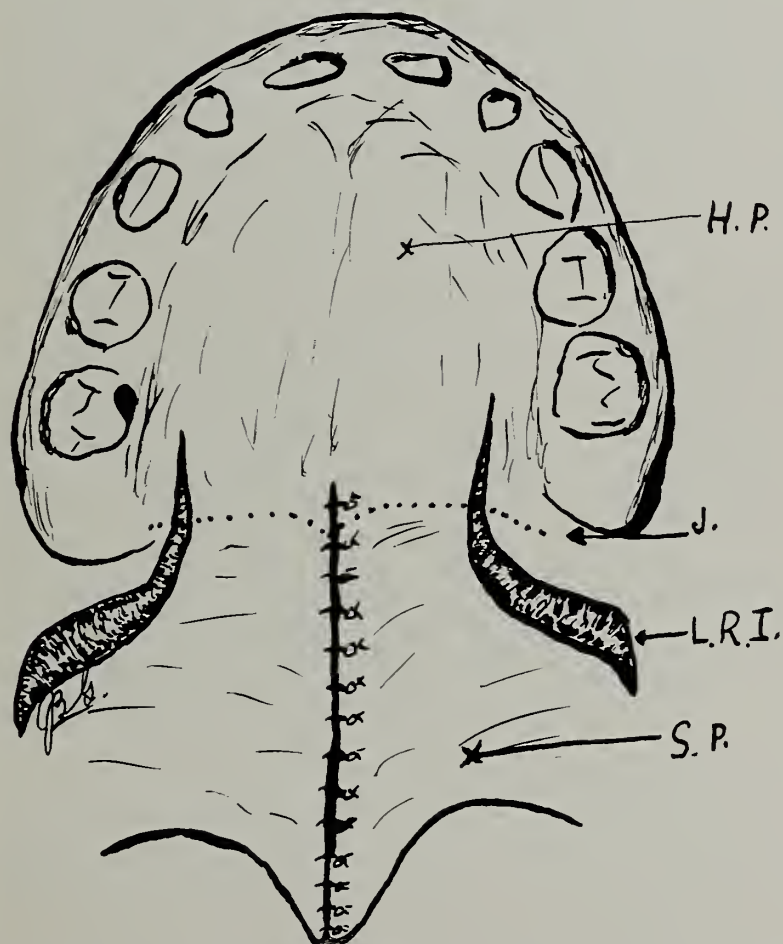


Figure 3.



Illustrations of the pre-operative findings in a girl with a severe, wide bilateral cleft lip and palate deformity and her face as seen at about 7 years of age. The cupid's bow of the lip will be repaired later and the upper incisor teeth are being treated orthodontically, which will improve the upper lip contour.

Figure 4.



Artist's conception of the closure of a palatal defect involving the soft palate. A similar repair might be used in the reconstruction of a narrow defect involving the entire palate. H.P.-hard palate, J.-junction of hard and soft palates, L.R.I.-lateral relaxing incisions, S.P.-soft palate. The lateral relaxing incisions are used quite frequently to eliminate tension upon the suture line which may lead to breakdown.

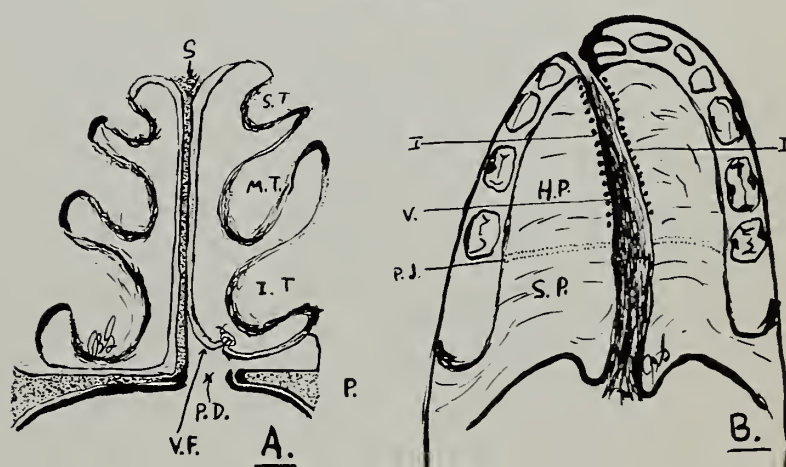
2) **Palate repair.** One or both sides, one or more stages.

A. **Primary closure** is usually delayed until at least 18-24 months of age, depending upon the width and extent of the defect, and the palatal growth. Repair of a wide

defect is usually postponed as long as possible to allow the palatal shelves to get maximum apposition. Many techniques are available but the surgical procedures have showed little actual change in the past 30 years.<sup>10, 11, 12</sup> Closure of a defect involving the soft palate only and a narrow defect involving the entire palate will often be approached in a similar manner. (See Figure 4).

B. **Vomerine flap(s)** are used to bridge the anterior portion of the defect and to supply gentle tension upon the palate to help narrow it posteriorly. These may be used in bilateral or unilateral defects and are usually done after 18 months of age. Their greatest use is in cases having wide palatal apertures to help narrow them. (See Figure 5).

Figure 5.



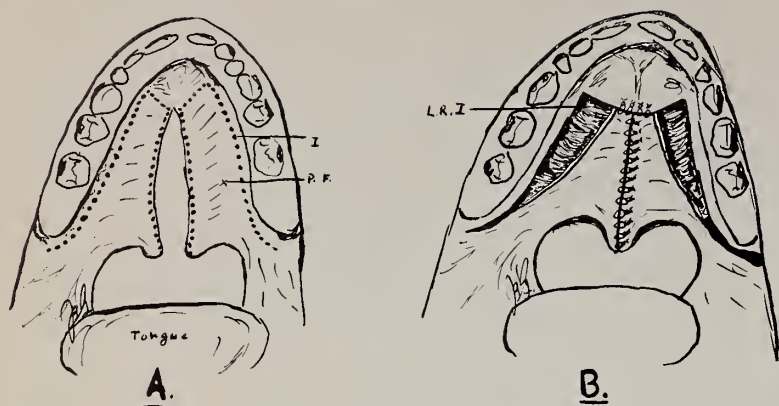
Vomerine flap. Coronal section (A.) and view of the roof of the mouth (B.) showing the origin of these flaps. With them the mucosa from the vomer portion of the nasal septum is elevated as is the mucosa from the superior surface of the hard palate and then the two are anastomosed. S-bony nasal septum, V.F.-vomerine flap, P.D.-Palatal defect, P.-hard palate, I.-incision lines, V.-vomer, P.J.-junction of soft and hard palates.

C. **Palatal pushback or lengthening procedures** may be used for the primary palatal closure or later, to displace the soft palate posteriorly and assist speech. (See Figure 6). Illustrated is basically a Wardill-Veau-Kilner operation.

D. **Pharyngeal palatal flaps** bridge the gap between the posterior pharyngeal wall and the soft palate to improve speech. (See Figure 7). Although such flaps may be employed in the primary repair to close the defect,<sup>11</sup> they are usually not done until 4-5 years or older, after speech patterns are developed and it can be ascertained that the child cannot overcome his speech defect. These flaps may be

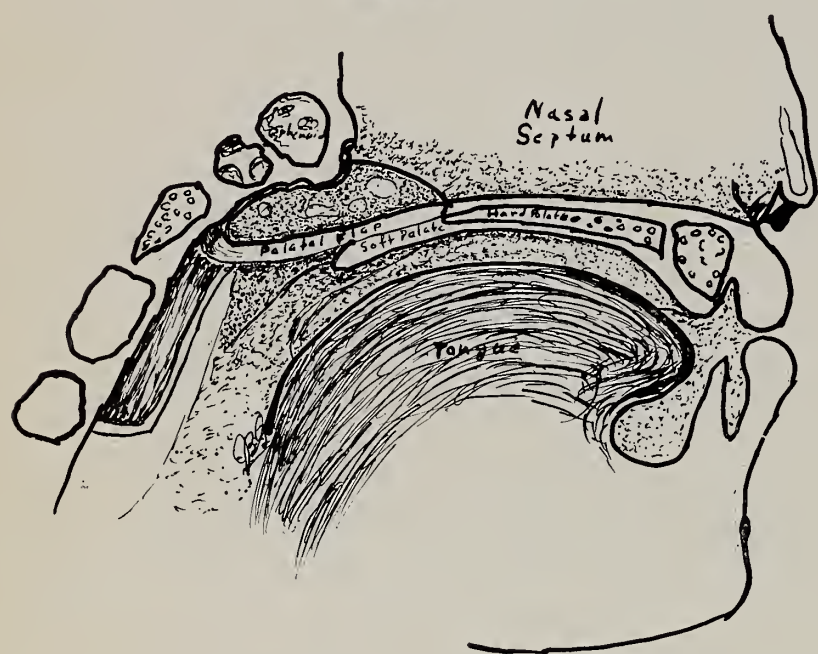


Figure 6.



Palate pushback operation. Mucosal flaps are elevated from the palate and rotated so as to gently force the soft palate posteriorly to narrow the velopharyngeal opening. I-incision, P.F.-palatal flap, L.R.I.-lateral relaxing incisions.

Figure 7.



Posterior pharyngeal palatal flap (superior based) operation to partially occlude the nasopharynx and improve speech. The mucosa from the posterior pharyngeal wall is attached to the superior surface of the soft palate in a superior based flap as illustrated here.

based superiorly or inferiorly and the operation may be combined with procedures to narrow the pharynx. Research which is now in progress using Teflon® paste injected into the space behind the mucosa of the posterior pharyngeal wall may bring into being a technique which will outmode and supplant the flap operation.<sup>13</sup>

3) **Correction of ear disease** (middle and external) complicating clefts. Anomalies of the external ear quite frequently accompany facial clefts. Otitis media (suppurative and serous) is very frequent in persons with palatal defects, probably due to deficient function of the eustachian tubes.<sup>14, 15</sup> These often lead to conductive type hearing loss or damage to the

tympanum, necessitating vigorous treatment. Frequent, careful auditory analysis and prompt treatment of hearing problems in cleft palate children is imperative to prevent permanent damage to the tympanum.

- A. **Plastic repair of congenital anomaly** including construction of the auricle, external auditory canal, drum and middle ear, is usually deferred until the child is at least 8-10 years old, frequently later. In unilateral agenesis of the sound conduction mechanism and normal hearing in one ear, therapy to the affected ear is elective, because the average person can function with only one ear quite well. Bilateral agenesis of the conductive apparatus can be treated at least temporarily by the use of amplification with a hearing aid so that the child can appreciate sound and develop speech. Construction of the auricle is primarily a cosmetic problem, the building of a canal and drum is a function restoring procedure. Although function can be helped in some cases, the long term results in the construction of external canals and drums leave something to be desired.
- B. **Adenoidectomy with or without myringotomy** is used to treat serous otitis media which very commonly affects these patients. Adenoidectomy in repaired cleft palate patients or those with submucous clefts may alter the speech necessitating a posterior pharyngeal palatal flap later and should be done only with caution. Selective lateral adenoidectomy has been advocated in these patients. Tonsillectomy should be avoided insofar as possible in these patients, and a bifid uvula or a submucous cleft should be ruled out in any person upon whom an adenotonsillar operation is contemplated.
- C. **Myringotomy and polyethylene (P.E.) tubes** are also used to treat otitis media with hearing loss and may be repeated several times if necessary. In prolonged cases, plastic grommets which produce a more prolonged drum perforation may be used to better advantage.
- D. **Tympanoplasty** or reconstruction of the tympanum is employed in persons having perforated drums or middle ear scarring due to otitis media. The primary purpose of this surgery is to insofar as possible re-



store function but it may also be needed to get a dry ear and to eliminate a drum perforation.

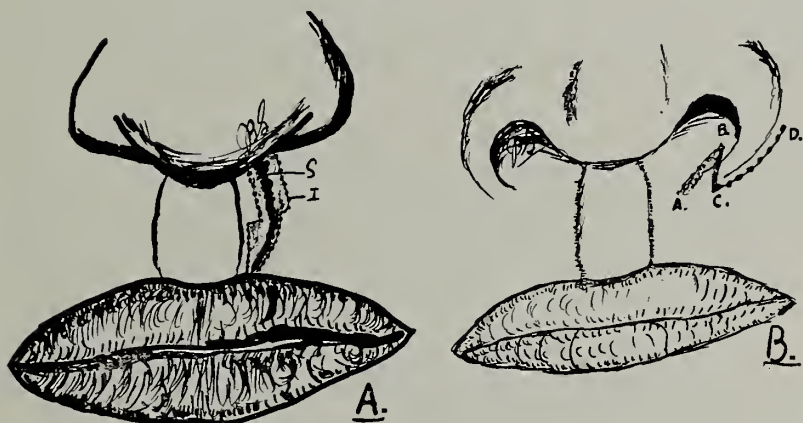
- E. **Mastoidectomy** may be necessary in persons who have had severe middle ear infections with destruction of bone in the mastoid area or the formation of a cholesteatoma. Because the mastoid areas are often poorly pneumatized in cleft palate children, pre-disposing to middle ear disease, mastoidectomy by creating a larger air containing cavity may assist in overcoming the otitis media problem.

## SECONDARY SURGERY

- 1) Revision of nose, lip, or palate may be needed to improve the functional or cosmetic effect. Although some procedures may be done early in life, the majority are usually deferred until sub-adult life.

- A. **Columellar lengthening** can be performed to elevate the depressed tip of the nose. This occurs more often in bilateral cleft lips. It is usually not done until at least 4-5 years of age or older. Several different techniques are available for this reconstruction. (See Figure 8).

Figure 8.



A. One variation of a "Z" plasty repair to eliminate an unsightly scar in the upper lip. S-scar, I-incision lines. B. Outline of an incision for a "Z" plasty to alter the nasal ala and narrow the floor of the nose. When completed, point A. and C. will coincide.

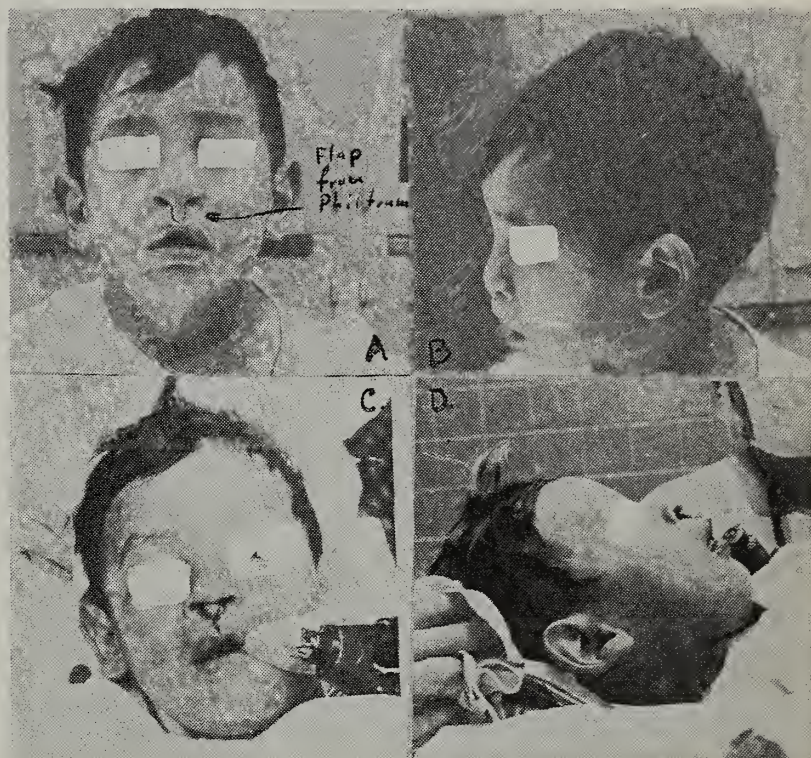
- B. **Abbe-Eslander, Gillies, or other flaps** may be used to improve the nose and lips where the original repair has been less than optimum. These are more commonly used when the facial structures approach adult configuration.

- C. **Repair of the gingiva-labial sulcus** may be needed when there is a defect in the nose-lip party wall or in bilateral cleft lips where the sulcus is shallow. These are usually done in the 4-10 year age bracket.

- D. **"Z" plasty or other procedures** may be used to revise the nasal ala or the upper lip when the facial structures are well developed, to give the final completed result. (See Figure 9B).

- E. **Revision of scars** by different reconstructive techniques is often needed to complete the repair when the facial structures are about at their adult proportions. (See Figure 9A).

Figure 9.



A. and B. Photos showing the pre-operative appearance of a bilateral cleft lip child whose nasal tip was severely retracted.

C. and D. Immediate post-operative views of the same child showing the elevation of the nasal tip, using a flap from the philtrum portion of the upper lip.

- 2) Nasal septal reconstruction will quite often be indicated in individuals with cleft palate defects due to the variable, often severe warping of the septum. This is usually not done until at least the mid-teens.

- 3) Repair of other congenital defects in the area.

- A. Micrognathia may accompany oral clefts producing respiratory embarrassment and inability to take nutrition. Tracheotomy or plastic procedures attaching the tongue tip to the lower lip may be utilized as temporary expedients to assist the child over the first six months, anticipating spontaneous improvement.

- B. **Removal of pre-auricular tags, lip pits, or other anomalous tissue** from the facial and neck area can be done at any time, primarily as a cosmetic aid.



C. **Removal of branchial cleft and thyroglossal duct (cyst, fistula) problems** can be performed at almost any age, as would be done in the non-cleft child.

D. **Facial reconstruction** in Pierre-Robin, Treacher Collins, and other syndromes can be done if the child lives to sufficient age that the congenital deformity becomes a cosmetic problem. This may involve bone grafting as well as soft tissue reconstruction.

#### COMMENT

Congenital facial cleft anomalies are here to stay, apparently increasing in frequency with time, especially in the Indian population of South Dakota, and are going to need much help, care, and treatment by the medical and dental professions, as well as by other para-medical personnel. Reconstruction of the defect as well as surgical correction of secondary problems which commonly accompany these defects are now and will continue to be prime factors in the treatment until this problem is eliminated by other means. The timing and staging of the surgical therapy so as to assist and complement the other forms of treatment is very important.

In view of the fact that this malady occurs with predictable frequency and is going to happen in the experience of the majority of the family physicians who practice in this state at some time in their working years, it would be wise to be aware of the treatment which may become necessary for these persons. In the past there were not available in South Dakota the facilities for the **total care** of these patients and many persons had to be referred away for care. **Such is not the case at the present time.** There are well trained and experienced pediatricians, maxillo-facial surgeons, otolaryngologists, orthodontists, dentists, and para-medical personnel who can treat all of the problems which will appear during the developmental stages of these patients. There is in operation a voluntary, non-profit Cleft Lip-Cleft Palate Diagnostic Team, based at the University of South Dakota and sponsored by the National Foundation, which conducts regular, scheduled clinics at population centers in this state. The free clinics are participated in by representatives of the various disciplines important in the **total** treatment of these problems. They may be from the community in which the clinic is being held or from elsewhere if such representation is not available on a local level. By means of these multi-disciplinary clinics it is much more possible to coordinate the treatment of the congenital cleft patients

and to achieve a comprehensive analysis and solution to each individual's problems. The team members and other participants in the Clinic find intellectual stimulation by this direct association with others who participate in the treatment of these problems. Any physician, dentist, public health nurse, teacher, speech therapist, or other person having legitimate business at the Cleft Clinic is welcome to participate in its activities. Undoubtedly the activities of the Cleft Lip - Cleft Palate Diagnostic (Evaluation) Clinic will some day become a function of the South Dakota State Health Department and its Crippled Children's Services.

#### CONCLUSIONS

Surgical therapy is most important as one of the facets in the treatment of children born with congenital facial defects. With improvement in techniques results gradually approach perfection. However, surgery is not the final answer to all problems of the person with facial clefts and for this reason the efforts of the surgeon must be correlated with and in many instances used to complement therapy by other disciplines. The treatment of cleft lip-palate problems should be one of teamwork involving everyone from the family physician to the psychologist, the dentist to the audiologist, a process in which each discipline contributes its efforts at the proper time.

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### ANNOUNCEMENT

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# Medicine

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A hospital was not liable for the death of a patient who developed serum hepatitis as the result of a blood transfusion, a Georgia intermediate appellate court ruled. The wrongful death suit was based on the alleged breach of an implied warranty that the blood was fit for the use intended.

A blood transfusion is an incidental part of the service furnished by a hospital in the course of medical treatment and is not a sale, even if the cost of the blood is specified as a separate item in the charges made. The Uniform Commercial Code expressly provides that the serving of food or drink for value is a sale, but does not provide that any other service-type transactions are covered by any implied warranty.

The wrongful death statute limits recovery to a death resulting from a crime or from criminal or other negligence, or death from the sale of specified articles intended for human consumption or use, where the seller knew of the defect or was negligent. Thus, even though the suit sounded in tort, it did not state a cause of action for wrongful death. There were no allegations of a crime or negligence, and, assuming that the transfusion was a sale, no allegations of a crime or that the hospital knew that the blood was contaminated.

\* \* \*

## FACT ISSUES RAISED IN SUIT FOR CHILDBIRTH INJURIES

A trial court erred in granting summary judgment for two osteopaths, a hospital and an intern in a suit against them by a patient and her child for injuries caused by their alleged negligence in connection with the birth of the child,

Information provided by the Law Dept., A.M.A., 535 North Dearborn St., Chicago, Ill.

a Florida appellate court ruled. The affidavits of the patient and a medical doctor were submitted in opposition to the motion for summary judgment. The affidavits were sufficient to raise issues of fact as to negligence on the part of the osteopaths and the hospital intern. The affidavit of the medical doctor was competent and relevant.

\* \* \*

## REMOVAL NOTICE WHEN PHYSICIAN LEAVES COMMUNITY

Not only is it ethical for a physician to notify his patients of the fact that he is leaving his practice, it is necessary that he do so. The physician has an affirmative ethical obligation to notify his patients of this fact in sufficient time to permit them to obtain the services of other physicians before he leaves the community. A doctor must not abandon his patients.

\* \* \*

## ANNOUNCEMENTS CONCERNING THE OPENING OR REMOVAL OF A PHYSICIAN'S OFFICE

On opening an office a physician may properly send announcements to his colleagues, to his intimate personal friends not in the medical profession, and to those persons in allied fields with whom it may reasonably be expected he will associate. Announcements of the opening of an office should not be mailed indiscriminately to all persons in the community, nor should commercial mailing lists be utilized. A brief news item carried in the local press, in itself, is not unethical. Local societies may, however, in the exercise of good judgment determine and fix limitations in this regard.

On removing an office a physician may properly advise of this fact to the same persons and in the same manner as he may announce the

(Continued on Page 34)



## Path CAPsule

Submitted by the College of American Pathology in connection with the South Dakota Society of Pathologists.

### CYSTIC FIBROSIS

#### INTRODUCTION

Cystic fibrosis is an hereditary disorder involving various exocrine glands of the body and characterized by the production of abnormally viscid secretions, particularly of the pancreas and tracheo-bronchial tree and an excessive secretion of electrolytes in the sweat. The clinical manifestations related to these abnormalities include: a) **meconium ileus** in the neonatal period (10-15% of the cases) due to the presence of an abnormal mucoprotein and possibly an unusual amount of albumin in the meconium, b) **intestinal malabsorption** due to a reduction or absence of pancreatic enzymes in the duodenum, c) **pulmonary difficulties**, e.g., atelectasis, emphysema and infection due to obstruction of the tracheo-bronchial tree by viscid secretions, and d) **heat prostration**, especially in hot weather or during febrile episodes, because of the abnormal loss of sodium and chlorides in the sweat.

#### LABORATORY DIAGNOSIS

The detection of abnormal secretion of sodium and chloride in the sweat forms the cornerstone for the diagnosis of cystic fibrosis. In affected children the secretion of both sodium and chloride is greater than 60 meq/L in 98% of cases. At the present time, the method of choice for the collection of sweat is by local stimulation of the sweat glands by pilocarpine using an electrical current (iontophoresis).<sup>1</sup> However, an alternative method which is simpler and apparently equally as reliable is the determination of the sodium by a sodium responsive glass electrode applied to the skin.<sup>2</sup>

A simple screening test is available and can be used in office practice. This consists of an agar plate impregnated with silver nitrate on which the patient's palm is placed. If the patient's sweat is high in chlorides, a yellow precipitate of silver chloride will form. It should be emphasized that this is not a diagnostic procedure, but a screening procedure, and false positives do occur.

#### ENZYME DETERMINATION

If the sweat electrolyte values are doubtful or normal and if there still is a high index of

suspicion the determination of stool and/or duodenal trypsin may be of value. Since the intubation of the duodenum is technically difficult for the physician and exhausting to the patient, a stool trypsin is usually performed initially. False negative as well as false positive results may be obtained. In general, three stools should be examined. If the tryptic activity is low or absent in all three, the probable diagnosis is cystic fibrosis. If the stools have a diminished tryptic activity and the sweat electrolytes are normal, then duodenal intubation is in order to arrive at a diagnosis.

#### SUMMARY

In summary, the determination of sodium and chloride in sweat is the most specific of the available laboratory tests for cystic fibrosis. If these are normal, and if there is still reason for suspicion, then stool and duodenal enzyme studies may be done to confirm the diagnosis.

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# RUBELLA VACCINE RECOMMENDATIONS\*

## Background Information

While rubella (German Measles) is generally a mild disease when contracted during childhood, in postpubertal individuals, particularly females, there is considerably greater potential for harm. The illness is often more serious and prolonged and not infrequently has complications such as arthritis, arthralgia, and rarely, encephalitis. In addition, when rubella is present during pregnancy, especially during the first trimester of pregnancy, but also during the second trimester, from 15% to 35% of the infants may be born with what is now known as the congenital rubella syndrome. This includes partial or total loss of hearing or vision, major heart defects, mental retardation or combinations of these defects. In addition, there is a significantly increased proportion of miscarriages and stillbirths. Thus, serious transplacental damage is done by the virus.

The incidence of rubella shows a seasonal increase in the spring, generally during March, April, and May, in the United States, and these seasonal increases, in turn, have superimposed on them major national and international (increases) epidemics occurring at irregular intervals of from approximately six to nine years each. During the last forty years, there were three exceptionally high pandemic peaks that occurred about 1934 and 1935, 1942 and 1943, and 1964.

The primary goal of rubella vaccination is the prevention of the congenital rubella syndrome, with secondary goals of preventing rubella in postpubertal patients where disabilities are usually more serious than the relatively mild disease that it causes in young children.

## Vaccine Development

In June, 1969, the first rubella vaccine was licensed in the United States. This was an attenuated live virus, manufactured by Merck, Sharp and Dohme. It is made from the HPV-77 strain that has been grown on duck embryo cell culture. This vaccine was tested on over 13,000 susceptible children prior to licensing, with essentially no adverse reactions, although transient arthralgia or arthritis and rash did occasionally occur in older patients.

Smith, Kline and French are currently manufacturing an attenuated live virus rubella vaccine from a different strain (Cendehill). This is grown on rabbit kidney cell culture in Belgium and probably will be licensed in the near future in the United States. There is a similar expectation for an attenuated live virus vaccine that has been grown on dog-kidney cell culture by Phillips-Roxane. In addition, experimental work is progressing at the Wistar Institute in Philadelphia with a still different virus strain (WI-38), which is being grown on human embryo lung cell culture (Diploid cell). Thus, it is very likely that prior to the next seasonal peak, which would be anticipated in spring, 1970, millions of doses of at least three different rubella vaccines will be available for use in the United States.

It is known that, following vaccination, virus particles are shed from the nasopharynx and uterine cervix. However, there have been no reports of cases of rubella as a consequence of the shedding.

## Vaccine Administration

The currently licensed vaccine is administered by a single subcutaneous injection of reconstituted lyophilized vaccine. The label and insert instructions should be carefully read and followed. The following precautions are recommended.

**Pregnant women must not be given the vaccine** because the viremia that follows vaccination and lasts two to six weeks may permit the virus to pass the placental barrier and affect the growing fetus.

If vaccination of a nonpregnant woman in the childbearing age is anticipated, special safeguards should be taken. These might include testing the woman to make sure she is not already immune to rubella\* and would include carefully weighing the advantages of vaccine administration against the disadvantages, including the possibility of her becoming pregnant, with the likelihood that the fetus might miscarry or develop the congenital rubella syn-

\* The only reliable evidence of immunity is a positive serological test. However, because of the variation among reagents and technical procedures, results of serological tests should be accepted only from laboratories of recognized competency that regularly perform these tests.

\* Prepared by the Council on Environmental and Public Health of the American Medical Association.



drome. If the physician believes that vaccination is desirable, he should prescribe a medically acceptable method for contraception and should explain the potential risk of becoming pregnant to the patient, and, preferably, obtain written, informed consent for the vaccination.

Because of the possibility of placental transfer of maternal immune bodies and the likelihood of these interfering with the development of immunity following vaccination, it is recommended that the vaccine not be administered to children under one year of age. The presence of other virus diseases or any febrile active generalized infection, as well as the use of corticosteroids, irradiation, alkylating agents or antimetabolites or other agents that would weaken the normal defense mechanisms of the individual are contraindications to the use of rubella vaccine. Other contraindications include concurrent use of a different live virus vaccine (e.g. measles or poliomyelitis). Administration of the rubella vaccine should then be deferred for at least four to six weeks.

For the Merck, Sharp and Dohme vaccine (Lyovac-Meruvax), epinephrine should be available for immediate use in case of an anaphylactoid reaction. The vaccine (which is grown on duck embryo cell culture) should not be given to individuals who are sensitive to duck or chicken eggs or feathers and, inasmuch as each dose of the reconstituted vaccine contains 25 micrograms of neomycin, individuals sensitive to this drug should not receive vaccine.

#### **General Recommendations**

Inasmuch as the vaccine currently available in the United States is still relatively new (about 13,000 susceptible children had been observed for adverse reactions prior to licensing), it is possible that unanticipated adverse reactions, particularly in older patients, may occur with the general use of the vaccine. Therefore, it is recommended that any serious adverse reactions be reported promptly to the State Health Department and to the manufacturer who is responsible for reporting it to the Division of Biologic Standards of the National Institutes of Health.

While the frequency of naturally acquired immunity varies considerably with the age of the patient and the incidence and prevalence of the disease in a particular community, the National Communicable Disease Center estimates that about 15% of the children under five years of age have become immune through naturally acquired disease, and that for the other age groups the respective natural immunity levels

are approximately 35% for the five to nine year olds, 60% for the ten to fourteen year olds, 75% for the fifteen to nineteen year olds, and 85% to 90% for those twenty to thirty-nine years old.

These figures vary from community to community, but may be used as a general guide for the desirability of performing screening tests for susceptibility prior to giving the vaccine. However, each person should be evaluated on an individual basis whenever possible.

For widespread use, in view of the lack of adverse reactions in small children and the fact that about two-thirds of the children under ten would be susceptible, all should receive the vaccine without doing a preliminary serological test for susceptibility. Children in kindergarten and the early grades of elementary school deserve initial priority for vaccination because they are commonly the major source of virus dissemination in the community. A history of rubella illness is usually not reliable enough to exclude children from immunization.

In view of the fact that circumstances will differ in various localities, it is recommended that group programs and public health programs should be launched on the basis of a coordinated plan, developed jointly by state and local public health agencies in cooperation with state and local medical and osteopathic associations.

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(Continued from Page 31)

opening of an office. In addition, he may, and should advise his patients of the essential facts concerning this removal. In any case, the physician is well advised to check with the appropriate office or committee of his local medical society in order to conform his conduct with local practice.

\* \* \*

#### **COMMERCIAL MEDICAL DIRECTORIES**

The Judicial Council is of the opinion that most, if not all of the directories described in the resolutions condemning as unethical the listing of physicians, by specialty, in directories published by commercial concerns, are but subtle ways of avoiding the pronouncement of the Principles of Medical Ethics concerning solicitation of patients, under a guise of buying a directory when the real intent in the purchase of the publication is to place the buyer's name in the directory for the purpose of obtaining patients.





# CLINICOPATHOLOGICAL CONFERENCE

*From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Departments of Pathology of the Hospital and of the School of Medicine of the University of South Dakota*



**RICHARD T. TSCHETTER, M.D.\***  
*Ophthalmologist, discussor*

**JOHN F. BARLOW, M.D.\*\***  
*Pathologist, editor*

## A TWENTY-FIVE YEAR OLD CAUCASIAN FEMALE WITH IRRITATION OF THE EYES

### CASE NO. 123456

This 25-year old Caucasian female entered complaining of irritation of the eyes of one year's duration.

When she first noticed the eye problem, she was having some sinus problem and underwent a rhinoplasty and submucous resection. She continued to have chronic eye irritation more marked on the left with no significant redness or discharge. Visual acuity has been normal. She had recently been in Europe but otherwise had not been out of the country. The patient had numerous allergies which included dust, pollen, feathers, and mercury. There was no other significant history.

#### Visual acuity:

right eye without glasses 20/20/-1  
0.5D/10 cm.

left eye without glasses 20/20/-2  
0.5D/10 cm.

#### Cytoplegic refraction:

right eye plano -  $0.25 \times 180^\circ = 20/20$

left eye plano -  $0.25 \times 180^\circ = 20/20$

**External slit lamp:** The skin portion of the lids were normal. The palpebral conjunctival slide, especially superiorly, showed a loss of normal architecture with what appeared to be some chronic scarring. One could not readily determine the normal conjunctival vessels. The limbal area showed an inflammatory pannus which had proceeded into the cornea superiorly. Just in front of

this there was an area of superficial stromal degeneration which had left a ring-like corneal opacity. In both eyes there appeared to be something similar to an arcus senilis but was not actually that. The anterior chambers were of normal depth and no cells or flare were noted. Both lenses were clear.

#### Muscle balance:

DISTANT VISION — orthophoric

NEAR VISION — orthophoric

NEAR POINT OF CONVERGENCE — to the tip of the nose

EXTRAOCULAR MOVEMENTS — full in the six cardinal positions.

#### Intraocular tension:

Normal to fingers, both eyes

#### Visual fields:

Full to confrontation, both eyes

**Ophthalmoscopic:** The media were clear. The discs were flat, well outlined and of normal color. The macular areas and retinal vessels appeared normal in both eyes.

There were no significant physical findings in the heart, lungs or abdomen. Hemoglobin was 13.5 gms%; the total leukocyte count was 7,000/mm<sup>3</sup> with a normal differential. A routine urinalysis was unremarkable. Serology was nonreactive.

DR. BARLOW: Today we have an interesting ophthalmologic case. Because of the general lack of knowledge of most of us about eye infections, I have asked Dr. Tschetter to discuss this interesting patient whom he saw. I have prepared the preceding protocol from his workup.

\*Ophthalmologist, Sioux Valley Hospital, and Clinical Faculty, USD.

\*\*Pathologist, Sioux Valley Hospital, Professor of Clinical Pathology, School of Medicine, University of South Dakota.



DR. RICHARD TSCHETTER: This was an interesting case of infection of the eye, however, we are not sure of the diagnosis even now. When I first saw the patient, I entertained the diagnosis of trachoma. I obtained conjunctival scrapings and sent them to the pathologists. What appeared to be inclusion bodies were present. The pathologists, having had little experience in this field, forwarded the slides to the Armed Forces Institute of Pathology. They considered the cytoplasmic inclusions as probable trachoma but also claimed that they had not had much experience. Therefore, we sent the slides to California to Dr. Phillips Thygeson, a world authority on trachoma. Fortunately, I also sent along clinical pictures of the patient. He felt that the inclusion bodies were artifact but that the clinical pictures were consistent with trachoma or chronic viral or allergic conjunctivitis. The patient has responded well to local and systemic sulfa. This is in favor of the diagnosis of trachoma.

Even though we do not know whether this patient had trachoma, I think the subject is worthy of discussion since this is a common cause of blindness in the world and is present in the Indians of South Dakota. It is a treatable disease, yet, a very bad disease which can cause blindness when left untreated. Before we get on to the discussion of trachoma, let me discuss conjunctivitis in general.

The conjunctiva is the mucous membrane coating of the eye that extends from the limbus and the lid margin to the fornix. The conjunctiva is either bulbar conjunctiva which is on the globe or palpebral conjunctiva which lines the inner surface of the eyelid. In spite of the fact that the eye is exposed to various viruses, bacteria, and fungi, conjunctivitis is relatively uncommon. This is because of several factors. One of these is the flushing action of tears. A foreign body in the eye gives rise to an increased amount of tears and tends to wash the foreign body out. Therefore, anything you get in your eye tends to wash itself out. A second factor is that the eye secretes a bactericidal substance called lysozyme. This substance makes it difficult to culture bacteria from the eye even in a grossly infected eye. The lysozyme kills the bacteria and often a report of "No growth" occurs on the culture. The eye has many cells which show phagocytic ability; and the eye, in general, is capable of a marked inflammatory response to bacterial or foreign body invaders. The chemical barrier of an intact epithelium of the conjunctiva or its extension over the cornea

is very important. The cornea is really an extension of the conjunctiva but the epithelium changes slightly. When the covering is broken, the tendency to limit infection decreases. There are a number of bacteria which can be seen normally in the eye. Streptococci, pneumococci, staphylococci and even meningococci have been cultured from the eyes of normal people and they do not get an infection. However, if there is an abrasion of the cornea or conjunctiva the patient can go on to develop a corneal ulcer or conjunctivitis because of the breakdown of the mechanical barrier.

The natural immunity of the individual also has to be taken into consideration. I certainly see many people with viral infections of the eye and probably contaminate my own eyes with their viruses and bacteria and yet I have never been infected.

There are several types of viral conjunctivitis. Trachoma is one type, the agent of which has been considered to be a large virus. There is an inclusion type conjunctivitis which is very similar to trachoma. This usually occurs in infants 8-10 days after birth and is transmitted via the genital tract of the mother. It is called inclusion blenorrhea. This agent also causes swimming pool conjunctivitis in adults. Herpes simplex and herpes zoster are two other types of viral conjunctivitis. The adenoviruses can cause a conjunctivitis. In children you will see pharyngeal conjunctival fever (PCF) in which they get fever, conjunctivitis, and a pharyngitis. Measles (Rubeola) can cause conjunctivitis. Another is adenovirus eight which can cause epidemic keratoconjunctivitis (EKC) in which there is a characteristic conjunctivitis and keratitis. In this disease there are characteristic subepithelial infiltrates. These are quite characteristic when seen under the slit lamp.

Many bacteria can cause conjunctivitis. The most common is staphylococcus but pneumococcus and neisseria can also cause conjunctivitis. In ophthalmia neonatorum (conjunctivitis of the newborn) neisseria gonococcus, staphylococci and inclusion body conjunctivitis are the most common. You can tell them apart not so much by the way they appear as by their time of onset. Neisseria conjunctivitis usually comes on within the first two or three days but inclusion body conjunctivitis does not come on until five to ten days after birth. Staphylococcal conjunctivitis will come on later than that.

Allergic conjunctivitis is common particularly in women with the use of cosmetics. In children this is called vernal catarrh. You see the forma-



tion of papillae in this disease which are proliferations of the conjunctival epithelium. There is a vessel in the center of these papillae and if you do a conjunctival smear you will see a lot of eosinophils. These children often have other allergies such as hay fever and asthma. Cosmetics, soaps and hair sprays cause conjunctivitis as I have mentioned. Several of these compounds are supposed to be non-allergic but you can develop allergies to them. I have seen several women in whom there are subconjunctival deposits of pigment. This is really the eyeshadow and eyeliner that has gotten into the eye. The pigment is probably beneath the epithelium. It often does not show a reaction, but I am sure that in ten or fifteen years if they keep applying this material to their eyes, they will have a chronic inflammatory problem. I think that eyeshadow is all right if applied infrequently but on a day-in-and-day-out-basis, it may cause eye problems.

\*DR. ROSSING: Is it carcinogenic?

DR. TSCHETTER: I have never seen that reported. Fungal conjunctivitis is a rarity. You do not see it in healthy people but usually in those who are debilitated or on steroids. It is usually a keratitis rather than a conjunctivitis and can be extremely difficult to treat.

Conjunctivitis may be of an irritative type due to a number of different agents. Trauma, x-ray, heat, and chemicals such as lye and acid can cause conjunctivitis.

I might mention the treatment of conjunctivitis. The treatment of viral conjunctivitis is in general not good because there are not many effective antibiotic agents. We have treatment for herpes simplex conjunctivitis. This is IDU (idoxuridine).

\*\*DR. ORTMEIER: Hasn't this been questioned?

DR. TSCHETTER: Yes, but I feel that most studies have shown that IDU is better treatment than no treatment or cauterization with iodine. A certain number do get well themselves. I believe IDU is effective. Steroids can be effective in herpes zoster in certain stages, particularly the late stage. The sulfa drugs as has been mentioned are effective in trachoma and in inclusion body conjunctivitis and sometimes in epidemic keratoconjunctivitis. Antibiotics are effective in bacterial infections depending on what type of bacteria you have. Terramycin is effective in

many. Isoptocetamide which is a sulfa drug is effective. Neosporin, which is neomycin and polymyxin is effective. Actually, bacterial infections of the eye are uncommon in comparison with the number of viral infections. Most of them respond to antibiotics. One bacterial agent I have not mentioned is the Kochs-Weeks (*Hemophilus aegypti*) which causes an epidemic pinkeye and is sensitive to sulfa. Bacterial infections of the eye, as I say, are unusual. Hordeolums (styes) are common but actual conjunctivitis is rare.

DR. ORTMEIER: What do you do with all these children that develop styes and have a little bit of redness to the eye? Do you culture all these?

DR. TSCHETTER: No, I don't. I find cultures not particularly worthwhile for some of the reasons I mentioned. Frequently you get "No growth" and most of the infections respond to the usual antibiotics. I have had purulent conjunctivitis which showed "No growth" on culture.

DR. ORTMEIER: Do you treat systemically too?

DR. TSCHETTER: Well, for a stye sometimes you don't even need antibiotics. If it is early, I think hot compresses every two hours particularly in children are effective. This is the way you would treat any abscess. It will rupture usually. Actually, you can burn the skin around the eye but you really don't harm the globe too much with hotter compresses. I usually do put children on Neosporin because it doesn't burn so much or on sulfa drugs.

\*DR. MERSY: Can you make the differential diagnosis of conjunctivitis clinically?

DR. TSCHETTER: Yes, you can. Viral conjunctivitis will often have a lot of mucus and when you raise the lid you will find follicles. These follicles are composed of desquamated epithelial cells, lymphocytes, macrophages and plasma cells. The follicle is a sort of a white elevation and there is a vessel which goes around the base of it. A papilla of allergic conjunctivitis is a little different and the vessel seems to come up in the center. Allergic conjunctivitis almost always itches and the discharge is not so great. Bacterial conjunctivitis almost always has a purulent discharge. You can get a lot of information from a conjunctival smear. In viral conjunctivitis you will see mostly lymphocytes and a few polys. In allergic conjunctivitis that has not gotten to the chronic stage, you will see a lot of eosinophils. In bacterial conjunctivitis you get mostly polys.

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DR. MERSY: This is done with Wright stain?

DR. TSCHETTER: Yes. You fix it with methyl alcohol, stain it with Wright's or Giemsa's stain. Clinically you can be pretty sure which type of conjunctivitis you have.

\*\*DR. WEGNER: Is trachoma still prevalent?

DR. TSCHETTER: Yes, it is the most common cause of blindness in the world and probably a third of the people in the world have had or do have trachoma. It has been described way back into ancient times. In fact, Hippocrates described the treatment of trachoma as eversion of the eyelid and rubbing it with wool wrapped around a hard cord of wood. You can imagine having that done to your eyelid! Even up to the 1900's scraping the eyelid was still used. Scraping all the follicles off where the virus and inflammatory cells were, sometimes would cause the infection to subside. There are a number of interesting stories about whole armies going into North Africa or Egypt and being blinded by trachoma or ships going to the New World where the whole crew was blinded. Trachoma can be a very acute disease particularly in children while it is more chronic in adults. It causes blindness by the extensive pannus formation which involves the cornea. It occurs in areas where there is a hot dry climate with a lot of wind and dust. Such areas as North Africa, or the southwest United States are good examples. Dr. Thygeson has made his extensive studies in the Indians in the southwestern United States. It has certainly been picked up in the Indians here in South Dakota. It is present where there is poor hygiene, therefore, in the low economic groups.

DR. MERSY: How is it transmitted?

DR. TSCHETTER: It is transmitted from person to person.

DR. BARLOW: The disease is usually transmitted on articles such as infected towels, or other fomites and therefore requires poor hygiene. The agent itself is quite sensitive to drying and a number of chemical agents and is fairly hard to transmit by other means.

DR. TSCHETTER: They used to make a distinction between inclusion conjunctivitis and trachoma. The clinical picture of the two diseases is quite different but the inclusion bodies are the same. Inclusion conjunctivitis is a disease of children and causes a mild cervicitis in women and urethritis in the male. This was sup-

posed to be transmitted genitally and trachoma is not. However, they have proved now that trachoma can be transmitted in the same way.

DR. TSCHETTER: Let me show some slides now of trachoma. Trachoma is divided into four stages. The first stage is the acute stage in which there is edema, and redness of the upper lid with infiltration by many polys. The second stage is divided into two parts in which there is papilla formation followed by follicle formation. The third stage is one in which there is scarring and pannus formation which covers the cornea and causes the blindness. The fourth stage is the arrested stage in which there is no active inflammation. These pictures show the marked thickening of the lid with the follicles of trachoma. The next show the pannus which is characteristically in the upper part of the eye and advances over the cornea. Another sign of trachoma is called Herbert's pits. These are due to ruptures of follicles and you can see them easily with the slit lamp as little depressions or scars. It is not only the pannus that causes the problem, but these patients get secondary infections with corneal ulcers and these also can lead to scarring and blindness.

DR. BARLOW: I might say a few words about the agent of trachoma. The organism is a member of the group of microorganisms often referred to as the psittacosis-lymphogranuloma venereum-trachoma group (PLT). These organisms are obligate intracellular parasites like viruses and were thought to be large viruses. Recently, because of the facts that they contain both RNA and DNA rather than being composed completely of one or the other and because of differences in their life cycle within the cell and because they have an important property of susceptibility to antibiotics and sulfa drugs, they have been classified as *Bedsoniae* (after Bedson) or recently have been called *Chlamydia*. Trachoma is usually discussed together with the agent of inclusion conjunctivitis and they are referred to as the Tric agents. These agents are similar in all biologic properties except for the disease they produce. The agent of trachoma was not isolated until 1957 and can be grown on embryonated eggs and yolk sac well. Characteristic elementary cytoplasmic inclusion bodies are produced — the Halberstaeder — Prowazek bodies. They can be seen in early trachoma in epithelial cells from conjunctival scrapings. Spontaneous infection by Tric agents occurs only in man but primates can be infected experimentally. The agents attack the eye and mucous membrane of the genital tract.

\*\*Pathologist, Sioux Valley Hospital, Professor of Pathology, School of Medicine, University of South Dakota.



Trachoma is a disease of hot dry climates and is present in North Africa, Asia, and Southwestern USA. In endemic areas such as areas of North Africa, it has been estimated that 100% of the children contract the disease. It may be an acute disease as Dr. Tschetter points out but is often slowly progressive with pannus formation (scarring), follicular hyperplasia and secondary bacterial infection. All of these can lead to blindness. The upper lid seems to be attacked the most.

The agent of inclusion conjunctivitis has been thought to affect the mucous membrane of the genital tract especially the cervix and pass to the infant on passage through the birth canal. This disease is a purulent self-limited conjunctivitis with no scarring or blindness. It affects mainly the lower lid. The disease starts on the fifth to fourteenth day after birth.

Trachoma can often be prevented by therapy and proper hygiene such as avoidance of use of similar towels and eye pencils. Vaccines which have been effective are being tried and may be of significance.

DR. MERSY: Are there any good serologic tests?

DR. BARLOW: No serologic tests are useful and there is no practical skin test. The methods of diagnosis of trachoma include (a) virus isolation — this is available in a few areas (b) conjunctival scraping — this may reveal the characteristic cytoplasmic inclusions. Early many polys may be present but rupture of one of the follicles will show plasma cells, lymphocytes, and macrophages with ingested debris (so-called Leber cells). Fluorescent antibody techniques of staining the scrapings are probably more accurate than the Giemsa stained preparations.

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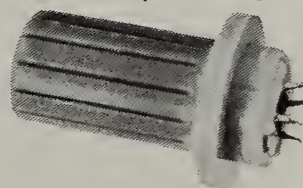
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## COUNCIL MEETING

10:30 A.M.

Ramada Inn

Sunday, Sept. 28, 1969

Sioux Falls, South Dakota

The meeting was called to order by W. R. Taylor, M.D., Chairman of the Council. Those present for roll call were Doctors: R. H. Quinn, J. A. Muggly, G. Robert Bartron, W. R. Taylor, Clark Johnson, G. E. Tracy, Bruce Lushbough, C. L. Swanson, Fred Leigh, Harvard Lewis, M. R. Cosand, H. H. Brauer, J. B. Gregg, B. J. Begley and R. E. Van Demark.

The Council considered the possibility of including the physicians' telephone numbers in the 1970 Board directory. Dr. Lushbough moved that the Council recommend that the Board include the physicians' telephone numbers in the 1970 directory. The motion was seconded by Dr. Tracy and carried.

The Council discussed the settlement of the suit between the College of Pathologists and the U. S. Government. Dr. Bartron moved to defer any action on this until a representative of the College of Pathologists is present for discussion. The motion was seconded by Dr. Quinn and carried.

Mr. Erickson discussed SSA's proposal to place a social security staff person in the Blue Shield office. Dr. Tracy moved that the Council state that they are basically opposed to having an SSA man in the Blue Shield office and any action necessary will be taken when this proposal is carried out. The motion was seconded by Dr. Bartron and carried.

A discussion was held concerning the billing of laboratory services to patients. The Council recommended that each Councilor discuss this at the district level and that an item be placed in the Grab Bag for the doctors' information.

A report of the Ad Hoc Committee on the Medical School was submitted for the Council's information.

### AD HOC COMMITTEE ON THE MEDICAL SCHOOL

August 20, 1969  
1:45 P.M.

711 North Lake Avenue  
Sioux Falls, South Dakota

The meeting was called to order by R. F. Hubner, M.D., chairman of the committee. Present were Doctors R. F. Hubner, G. E. Tracy and J. B. Gregg. Also attending the meeting was Warren Jones, M.D., an ex-officio member of the committee.

The first order of business was to define the duties of the Ad Hoc Committee. After discussion, the following four points were adopted as the charge of the committee:

1. Legislative activity to provide financial assistance to the School of Medicine, Vermillion.
2. Liaison activity between the Medical School, the Medical Association, and the Ad Hoc Committee.
3. Members of the committee will assist, when called upon, in a study of the medical school and also keep themselves informed of the progress of such study. The committee feels it would be desirable that an out-of-state group make the study of the medical school.
4. The committee should act as clearing house or focal point for various studies on medical education being conducted by different groups. The ultimate responsibility of the group will be to correlate the various studies and submit recommendations to the Council of the State Medical Association on the needs of the medical school.

Dr. Hubner stated that he has been informed that the medical school will have a line item in the University budget for the coming fiscal year.

Mr. Robert Johnson, Director of Public and Professional Relations, discussed the brochure being prepared on the needs of the medical school. This brochure will be provided to the doctors in the state and they will be encouraged to contact their legislators to urge support of the school. Dr. Hubner suggested that the district societies be contacted to complete the physician contacts which Mr. Johnson is unable to make, due to the limited time prior to the legislative session.

The Committee discussed the desirability of requesting earmarked funds for support of the medical

school. It was the consensus of the group that support for the school should come from the over-all tax revenues, rather than from a special tax.

The Committee unanimously agreed that the individual members would act as consultants in any study of the medical school if requested on a voluntary basis.

The Committee directed Mr. Erickson to correspond with Richard Gibb and the Board of Regents, with a suggested list of medical survey consultants for their consideration. The list has been provided by the American Medical Association. The Board of Regents should also be apprised of the Committee's willingness to assist in the study.

The date of the next meeting will be decided by Dr. Hubner, after consultation with Mr. Robert Johnson on the progress of his visitations with the doctors in the state. The meeting adjourned at 3:30 P.M.

Dr. Bartron moved that Dr. Robert Hayes be contacted and that up-to-date information on the status of the Medical School budget be ascertained and that this information be given to the Council and members of the Ad Hoc Committee. The motion was seconded by Dr. Johnson and carried.

The Council discussed the complaint filed against the Medical Associates Clinic in Pierre by J. T. Cowan, M.D. Mr. Erickson was absent from the discussion. Dr. Tracy moved that the Council inform Dr. J. T. Cowan that the association of Roger Liudahl, O.D. with the Medical Associates Clinic is not unethical and not an issue for the Council; and that the Council consulted the members of the South Dakota Academy of Ophthalmology and Otorhinolaryngology for their opinion. The motion was seconded by Dr. Quinn and carried.

Dr. Quinn reported on the Regional Medical Program meeting for the Council's information.

Mr. Erickson announced that the North Central Medical Conference will be held in St. Paul on November 8 and 9 and urged the physicians to attend if at all possible.

Dr. Tracy reported on the activities of the Commission on Medical Service.

### MINUTES OF THE COMMISSION ON MEDICAL SERVICE

10:00 A.M.

Executive Office

Saturday, Sept. 6, 1969

Sioux Falls, South Dakota

The meeting was called to order by G. E. Tracy, M.D., Chairman of the Commission on Medical Service. Those present for roll call were Doctors G. E. Tracy, Bernard Gerber, William Taylor, Gerald Tuohy, T. H. Sattler and Warren Jones. Also in attendance were Doctors R. H. Quinn and James P. Steele.

Dr. Tracy briefly reviewed the preliminary draft of the proposed standards for hospital accreditation as established by the Joint Commission on Hospital Accreditation. No action can be taken by the Commission on Medical Service until a final draft has been adopted and released by the Joint Commission.

The commission reviewed the report on the Crippled Children's Program and requested that section four "Recommended for study" be clarified by the committee that submitted the report. The executive office will ask the committee members for clarification of this point and will send the information to the commission members. The commission also requested that the executive office send copies of the Crippled Children's Program report to Dr. Hayes and to members of the Public Health Advisory Committee for their information.

The commission members discussed the Medical School and problems concerning the school. Dr. Tracy reported that the Ad Hoc Committee on the Medical School is active and has implemented all recommendations made to date. The members reviewed the pamphlet "Your Medical School" which is prepared by the State Association and suggested that this be sent to newspaper editors, hospital administrators, hospital Boards of Trustees, and community leaders throughout South Dakota. The commission recommended that a letter be sent to Dean Knabe asking if



he would like to have one or two more physician members on the Medical School Admissions Committee. Dr. Taylor moved that the commission recommend to the Council that the Governor be urged to embark on a study of the Medical School using the funds already appropriated for such study and that this study be done as speedily and expeditiously as possible even though it may run through the legislative session this year. The motion was seconded by Dr. Jones and carried.

Dr. Gerber gave a brief report on the activities of rural health. He informed the commission that the new accident reporting forms are being used throughout the state and the results have been very good.

Dr. Steele presented information on the role of the Association in Comprehensive Health Planning. Dr. Steele requested the commission's approval of the following points and a favorable recommendation to the Council permitting him:

1. To accumulate raw data or factors relating to Comprehensive Health Planning.
2. To prepare this data in easily accessible form.
3. To draw conclusions for presentation to the commission and to the Council for their approval.
4. To forward this data to Comprehensive Health Planning in South Dakota if approved.
5. To request the Council's approval of independent dissemination of this information if not accepted or acted upon by the Comprehensive Health Planning Board.
6. To release this information only upon receiving permission from the commission or the Council.

Dr. Gerber moved that the commission recommend the acceptance of Dr. Steele's proposal to the Council. The motion was seconded by Dr. Taylor and carried.

Dr. Tracy announced the meeting of the 12th National Conference on Physicians and Schools to be held October 8-11 in Chicago and asked if any commission member would like to attend. Dr. Tracy will find a physician to attend the meeting or will attend it himself.

Mr. Erickson reported on the activities of medical students throughout the country. Dr. Gerber moved that the commission recommend to the Council that one sophomore student be designated as an ex officio, non voting member to each commission, one sophomore student be designated as an ex officio, non voting member to the Council and two sophomore students be designated as ex officio, non voting members to the House of Delegates; that these students be selected by the students themselves and that this is voluntary and non supportive attendance. The motion was seconded by Dr. Taylor and carried.

Dr. Tuohy reported on the emergency ambulance service. Dr. Tuohy moved that the commission recommend to the Commission on Legislation and Governmental Relations that the Good Samaritan Law be amended to read as follows:

"No physician, surgeon, osteopath, registered nurse or licensed nurse duly licensed under the provisions of Chapters 36-4 and 36-9 (((or any other person))) who in good faith renders, in this state, emergency care at the scene of the emergency, shall be liable for any civil damages as a result of any acts or omissions by such person in rendering the emergency care."

The motion was seconded by Dr. Taylor and carried. Dr. Tuohy moved that the commission recommend to the Council that the State Association support the Governor's Council on Emergency Care. The motion was seconded by Dr. Sattler and carried.

The meeting was adjourned at 11:45.

The Commission requested that the Council submit the name of a physician in South Dakota to serve on the Admissions Committee of the Medical School. Dr. Lushbough moved that Mr. Erickson contact Dr. R. F. Hubner and ask him to serve on the Admissions Committee; if he is unable to serve, the Ad Hoc Committee on the Medical School will submit names of physicians in South Dakota to the Admissions Committee for this appointment. The motion was seconded by Dr. Cosand and carried.

The Council considered Dr. Steele's proposal concerning the role of the Association in Comprehensive Health Planning. Dr. Swanson moved that before any action is taken by the Council, they should be made aware of all the facts concerning this project as to where the money is coming from, how it is to be dispensed and for what purpose he wants the Council's approval. The motion was seconded by Dr. Leigh and carried.

Dr. Swanson moved that the Council accept one sophomore student from the Medical School to serve as an ex-officio, non voting member of each Commission, one sophomore student to serve as an ex-officio, non voting member of the Council and two sophomore students to serve as ex-officio, non voting members to the House of Delegates. The motion was seconded by Dr. Leigh and carried.

Dr. Lewis moved that the Council accept the report of the Commission on Medical Service. The motion was seconded by Dr. Johnson and carried.

Dr. Gregg reported on the activities of the Commission on Legislation and Governmental Relations.

### MINUTES OF THE MEETING OF THE COMMISSION ON LEGISLATION AND GOVERNMENTAL RELATIONS

711 North Lake Avenue  
Sioux Falls, South Dakota

10:00 A.M.  
September 13, 1969

The meeting was called to order at 10:00 A.M. Present for roll call were Doctors J. B. Gregg, R. H. Hayes, James F. Ryan, Howard Wold, R. J. Foley and R. W. Honke. Dr. Gerald Tuohy also was in attendance.

The Commission discussed the recommendations which have been made by various groups concerning the State Training School at Plankinton, South Dakota. Dr. Wold moved that the Commission recommend to the Council that the Board of Charities and Corrections be informed of the Association's interest in this institution; that the Association recommends that either adequate psychological and medical facilities be provided at Plankinton, or the institution should be moved to a location where they can be provided; and that the Board keep this Association informed of their plans concerning the State Training School. The motion was seconded by Dr. Ryan and carried.

The bill proposed by the Service to the Blind to provide mandatory reporting by physicians was discussed. Dr. Hayes moved that the Commission recommend to the Council that the Association endorse the position of the American Medical Association in regard to mandatory reporting of the blind or other diseases. The motion was seconded by Dr. Foley and carried.

Dr. Tuohy discussed the emergency medical care training and the Good Samaritan Law. He suggested that the words "any other person" be included in the Good Samaritan Law. Dr. Hayes moved that the Commission recommend to the Council that the Association endorse this change of wording in the Good Samaritan Law. The motion was seconded by Dr. Foley and carried.

A discussion was held on the Medical School appropriation bill. Mr. Erickson reported that the Board of Regents will include a separate line item in the budget for the School of Medicine. Dr. Hayes moved that the Commission recommend to the Council that the Association sponsor and endorse the separate budget for the School of Medicine. The motion was seconded by Dr. Honke and carried.

Dr. Gregg reported to the Commission on the action taken regarding the Communicable Disease Control Amendment of 1969 — Senate Bill No. 2264. All members of the South Dakota delegation in Washington have been contacted concerning this legislation. No action was taken by the Commission on this subject.

The Commission discussed legislation which has been introduced in California regarding possible fraud under Title 19. No action was taken.

The Commission discussed the report from Minnesota on licensure of clinical laboratories. No action was taken.



The Commission discussed the legislation passed in Colorado regarding the "Pediatric Assistant." Dr. Hayes moved that the Commission recommend to the Council that further study be given to this subject before any legislation is considered. The motion was seconded by Dr. Honke and carried. It was suggested that an editorial be prepared for the Journal on this matter.

After discussion of the Blue Shield Enabling Law in South Dakota, Dr. Foley moved that the Commission recommend to the Council that the Association go on record to oppose any attempt to open up the Blue Shield Law to other practitioners at the 1970 legislative session. The motion was seconded by Dr. Ryan and carried.

The Commission discussed a proposed law to be sponsored by the State Medical Association to raise the salary of the State Health Officer to \$27,000. Dr. Ryan moved that the Commission recommend to the Council that the Association sponsor this legislation at the 1970 legislative session. The motion was seconded by Dr. Foley and carried.

The Commission discussed the bill which would raise the fees for doctors serving on county boards of mental health. Dr. Foley moved that the Commission recommend to the Council that the Association sponsor this bill at the 1970 legislative session. The motion was seconded by Dr. Wold and carried.

The Commission discussed the proposed legislation for licensing of clinical psychologists. Dr. Wold moved that the Commission recommend to the Council that the Association endorse this legislation provided that a psychiatrist is named to the Board established in the law, and provided that the law specifically excludes psychologists from the practice of medicine. The motion was seconded by Dr. Honke and carried.

The Commission discussed malpractice legislation, but no action was recommended for the coming session. It was suggested that Dr. Gregg prepare an editorial for the SOUTH DAKOTA JOURNAL OF MEDICINE on this subject.

Dr. Ryan moved that the Commission recommend to the Council that the executive secretary, general counsel, physician legislators, and the Chairman of the Commission on Legislation and Governmental Relations be empowered to act on bills at the session in Pierre, without clearance of the Council, if time is not available for such clearance. The motion was seconded by Dr. Honke and carried.

The meeting adjourned at 12:30 P.M.

#### 1970 LEGISLATURE

##### SPONSOR

1. \$800,000 appropriation for the Medical School with a separate line item.
2. Bill to raise State Health Officer's salary to \$27,000.
3. Raise fees for physicians involved in mental illness hearings.

##### ENDORSE

1. Endorse amendment to the Good Samaritan Law to include (((any other person))).
2. Psychologist licensing bill with amendments including a physician on the Board and excluding them from the practice of medicine.

##### OPPOSE

1. Endorse the AMA's position to oppose mandatory reporting.
2. Oppose mandatory reporting of visually handicapped to Service to the Blind.
3. Oppose any attempt to open the Blue Shield Law to other practitioners.

The Council discussed the proposed endorsement of the change in the Good Samaritan Law. Dr. Tracy moved that the Association endorse a change in the Good Samaritan Law which would include the wording "other personnel trained in emergency care." The motion was seconded by Dr. Cosand and carried.

Dr. Quinn suggested that the State Medical Association consider suing the federal government to

enjoin them from withholding fees under the Medicare and Title 19 Programs. Dr. Swanson moved that the Commission on Legislation take this as a project and investigate the possibilities of suing the federal government, and that the commission report back to the Council at its next meeting. The motion was seconded by Dr. Lushbough and carried.

Dr. Tracy moved that the Council accept the legislative program for 1970 as proposed by the Commission with the exception of the Good Samaritan Law which wording should be changed to include (((other personnel trained in emergency care))). The motion was seconded by Dr. Bartron and carried.

Dr. Lushbough reported on the activities of the Commission on Scientific Medicine.

#### MINUTES OF THE COMMISSION ON SCIENTIFIC MEDICINE 1:30 P.M. Executive Office Saturday, Sept. 6, 1969 Sioux Falls, South Dakota

The meeting was called to order by Bruce Lushbough, M.D., Chairman of the Commission on Scientific Medicine. Those present for roll call were Doctors Bruce Lushbough, H. Streeter Shining, H. Phil Gross, R. J. Zakahi, E. H. Heinrichs, John Tidd and Karl Wegner. Also in attendance was R. H. Quinn, M.D.

The commission discussed the drug abuse problem in South Dakota. Dr. Heinrichs moved that the following recommendations be referred to the Council for action:

1. The State Health Department should be urged to participate in the study of drug abuse problems.
2. Five copies of a packet published by the AMA on drug abuse should be distributed to each district medical society, and a district meeting should be devoted to self education on drugs and drug abuse.
3. Physicians at the district level should be urged to promote drug abuse programs in the high schools and junior high schools and urge medical school students who are interested to present programs in their area.

If these recommendations are accepted by the Council, the executive office is directed to inform the State Commission on Mental Health and Mental Retardation of these efforts. Mr. Erickson will speak to the medical students and request their participation in the drug abuse programs. The motion was seconded by Dr. Shining and carried.

Dr. Lushbough reviewed Dr. Leander's report on the Mental Health meeting which he attended for the commission's information.

Mr. Erickson reviewed the master evaluation report for the 1969 annual meeting and discussed the problems involved with the annual meeting and the decision to eliminate exhibits at the 1970 annual meeting. Dr. Lushbough moved that the commission recommend to the Council that the business sessions at the annual meeting be split with a one day scientific session in the middle. The motion was seconded by Dr. Shining and carried. Dr. Heinrichs moved that the commission recommend to the Council that the North Central Conference investigate the possibility of a combined annual meeting. The motion was seconded by Dr. Gross and carried.

The schedule for the one day scientific session was set up with the first speaker beginning at 9:00 a.m. Dr. Lushbough will contact Pfizer Laboratories to arrange for a speaker on alcoholism. Dr. Lushbough will also contact Richard Lillehei, M.D. of the University of Minnesota and request that he give a general discussion on transplants. Dr. Wegner will contact a physician to speak on plastic repairs or congenital deformities. The executive office will contact Fred Schoonmaker, M.D. of Denver and ask him to speak on coronary arteriography. The executive office will contact G. S. Paulson, M.D. of Rapid City and ask him to give his paper on rheumatology. The executive office will contact Kermit Krantz, M.D. of the University of Kansas and request that he speak on sexual maladjustment. The executive office will also



contact Dean Knabe and suggest that he arrange a panel of Medical School personnel and students to discuss the Medical School and its problems. The commission decided that initial contacts should be made prior to December 1.

The commission discussed the possibility of the Black Hills area hosting a regularly scheduled biennial or annual meeting. No action was taken.

Dr. Heinrichs briefly reported on the birth defect survey and the pooling of state records concerning birth defects.

Dr. Heinrichs also reported that the Advisory Committee on Special Education is attempting to establish a program for the evaluation of children for the commission's information.

The meeting adjourned at 4:30.

## PROPOSED FORMATS FOR ANNUAL MEETINGS

### I.

#### Thursday

6:00 P.M. Council Dinner and meeting

#### Friday

9:00 A.M. Budget and Audit  
11:00 A.M. Reference Committee Chairmen  
1:00 P.M. House of Delegates  
2:00 P.M. Blue Shield Corporate Body  
3:00 P.M. Reference Committees  
6:30 P.M. Stag

#### Saturday

8:00-9:00 A.M. Reference Committees (if needed)  
9:00 A.M.-4:30 P.M. Scientific Sessions  
6:30 P.M. Cocktail Hour  
7:30 P.M. Banquet

#### Sunday

8:00 A.M. Endowment Board  
8:00-12:00 Specialty Sessions  
10:00 A.M. Blue Shield Board  
1:00 P.M. House of Delegates  
2:30 P.M. Council  
3:00 P.M. Other meetings, SoDaPAC, etc.

SoDaPAC could have a luncheon starting at 11:30 A.M.

### II.

#### Saturday

9:00 A.M. Budget and Audit  
10:00 A.M. Council Meeting  
1:00 P.M. Reference Committee Chairmen  
1:30 P.M. House of Delegates  
2:30 P.M. Blue Shield Corporate Body  
3:30 P.M. Reference Committees  
6:30 P.M. SoDaPAC

#### Sunday

8:00 A.M. Endowment Board  
10:00 A.M. Blue Shield Board  
1:30 P.M. House of Delegates  
3:00 P.M. Council Meeting  
6:30 P.M. Stag

#### Monday

9:00-4:30 P.M. Scientific Sessions  
6:30 P.M. Cocktail Hour  
7:30 P.M. Banquet

#### Tuesday

8:00-12:00 Specialty Meetings

Dr. Bartron moved that the Council accept the recommendations of the Commission concerning the drug abuse problem in South Dakota. The motion was seconded by Dr. Lewis and carried.

Dr. Lushbough outlined two proposed formats for the 1970 annual meeting. Dr. Leigh moved that the Council accept format #1 for the 1970 annual meeting, which would mean that the meeting begins on Thursday evening and continues through Sunday, and that a flat registration fee be charged. The motion was seconded by Dr. Cosand and carried.

Dr. Lewis moved that the Council accept the report of the Commission on Scientific Medicine. The motion was seconded by Dr. Johnson and carried.

Dr. Van Demark reviewed the activities of the Commission on Communications.

## MINUTES OF THE JOINT MEETING OF THE COMMISSION ON COMMUNICATIONS AND THE COMMISSION ON LIAISON WITH ALLIED ORGANIZATIONS

10:00 A.M.

Saturday, Sept. 13, 1969

Executive Office

Sioux Falls, South Dakota

Dr. Van Demark, Chairman of the Commission on Communications, called the meeting to order. Those present for roll call were Doctors R. E. Van Demark, L. H. Amundson, William O. Hanson, A. J. Tieszen, David Buchanan, V. V. Volin, Loyd Wagner, Denny Ortmeier, Dagfinn Lie and Theodore Hohm.

Mr. Johnson reported that the Minnesota State Medical Association has agreed to let the South Dakota State Medical Association use its tapes of the "Doctor Tell Me" program. If the tapes are sent weekly to ten radio stations throughout the state and if these stations will provide the time for these tapes as public service time, the cost of this program will be approximately \$600 annually to the State Association. Dr. Hanson moved that the Commission on Communications recommend to the Council that the "Doctor Tell Me" program be adopted by the Association and implemented as soon as possible. The motion was seconded by Dr. Hohm and carried.

A discussion was held concerning the film "Horizons Unlimited." Dr. Ortmeier moved that the Commission on Communications recommend to the Council that a reminder notice be sent to the district medical societies advising them of the availability of the film and urging the physicians to contact local P.T.A.s and counselors and request that the film be shown in connection with Senior Day activities and that a physician or intern be present when the film is shown. The motion was seconded by Dr. Amundson and carried.

Mr. Johnson briefly reviewed the Community Health Week kit published by the American Medical Association and reported that this kit has been sent to the commission members and to the district medical societies. Dr. Ortmeier moved that the executive office send out the newspaper editorials to the newspapers in South Dakota and the spot announcements to the radio and T. V. stations in South Dakota. The motion was seconded by Dr. Lie and carried.

The Commission members discussed the possibility of holding a Health Careers Day for educators. Dr. Amundson moved that the Commission recommend to the Council that the State Medical Association obtain booth space at the 1970 South Dakota Education Association meeting in an attempt to educate counselors on medical and para-medical careers. The motion was seconded by Dr. Hanson and carried. Dr. Hanson requested that the executive office make up a packet on medical and para-medical criteria, including entrance requirements and locations in South Dakota for special training, for distribution to school counselors and at the SDEA booth. He suggested that the executive office contact Nebraska State Medical Association and request a sample packet from them.

Dr. Tieszen assumed the chairmanship for the section of the meeting pertaining to the Commission on Liaison with Allied Organizations.

The Commission discussed the possibility of a medical-legal meeting. Dr. Buchanan moved that inasmuch as the travel seminar has not been developed the Commission should consider re-establishing a Medical-Legal Conference. The motion was seconded by Dr. Volin and carried. Dr. Amundson moved that the Commission meet with representatives of the Bar Association at the March Commission meeting to set up a program for the following year, and that it be suggested to the Medical School Recognition Days' Planning Committee that this medical-legal meeting be held in Vermillion in conjunction with the Medical School Recognition Days. The motion was seconded by Dr. Buchanan and carried.

Inasmuch as there will be no exhibits at the 1970 annual meeting, the Commission deferred action on a medical-religion display. However, the Commission



recommended that the Commission on Scientific Medicine consider a medical-religion program for the 1971 annual meeting. The Commission also discussed the possibility of having a medical-religion meeting and luncheon during the 1970 annual meeting, and the executive office was directed to notify the members of possible times when this luncheon could be held.

Dr. Buchanan briefly reported on the guidelines for nurse participation in acute cardiac care for the Commission members' information.

Dr. Tieszen reviewed the Commission survey for the information of the Commission. Dr. Buchanan moved that one of the Commission meetings each year be held at a location at the discretion of the Commission chairman. The motion was seconded by Dr. Amundson and carried. For - 9; Against - 1.

The Commission discussed the AMA letter on Osteopathic membership. Dr. Hohm moved that the Commission recommend to the Council that the State Bylaws be changed to comply with the recommendations of the American Medical Association. The motion was seconded by Dr. Van Demark and carried.

A report on the Second National Conference for Representatives of State Medical Societies' Liaison with Nursing was submitted for the Commission's information. Dr. Amundson moved that the Commission accept this report. The motion was seconded by Dr. Volin and carried. Dr. Wagner suggested that the Commission attempt to have closer liaison with health care organizations in South Dakota. Dr. Buchanan moved that the Commission direct the executive office to send a letter to each para-medical organization in South Dakota asking two representatives from each group to attend the March Commission meeting and present any problems which they might like to discuss with the Commission. The motion was seconded by Dr. Wagner and carried.

Dr. Hanson moved that the Commission recommend to the Commission on Internal Affairs that the Commission on Communications and the Commission on Liaison with Allied Organizations meet jointly the remainder of this year and that the Bylaws be changed to combine these two commissions into one commission with a membership of twelve. The motion was seconded by Dr. Volin and carried.

The meeting adjourned at 12:30 P.M.

The Commission requested the Council's permission to use the "Doctor Tell Me" program as a public relations project. Dr. Tracy moved that the Association sponsor the "Doctor Tell Me" program and that it be implemented as soon as possible. The motion was seconded by Dr. Muggly and carried.

Dr. Leigh moved that the report of the Commission on Communications be accepted. The motion was seconded by Dr. Brauer and carried.

Dr. Van Demark reviewed the activities of the Commission on Liaison with Allied Organizations. The Council recommended that a medical-legal conference be arranged for 1970, and if possible, this should be planned in connection with Medical School Recognition Days.

The Council discussed possible projects in the medical-religion field. Dr. Tracy moved that the Association cosponsor a program established by Father Charles Carroll concerning general information on abortion, life and death, and transplants, without financial involvement. The motion was seconded by Dr. Lushbough and carried. The executive office was directed to assist in mailings regarding this program.

The Council discussed the locations of the commission meetings. Dr. Tracy moved that the commission meetings continue to be held in Sioux Falls at the executive office. The motion was seconded by Dr. Lushbough and carried.

A discussion was held concerning a change in the bylaws which would permit osteopaths to join the State Association and district medical societies. Dr.

Tracy moved that the Commission on Liaison with Allied Organizations present a resolution to the House of Delegates requesting that osteopaths be allowed to join the state and district medical societies. The motion was seconded by Dr. Johnson and carried. The executive office was directed to send a letter to the district presidents and secretaries asking them to discuss a possible change in the bylaws permitting osteopaths to join the medical societies at their district meetings.

Dr. Cosand moved that the proposal of the Commission to invite para-medical personnel to the next commission meeting in order to promote closer liaison be accepted by the Council. The motion was seconded by Dr. Muggly and carried.

Dr. Begley reported on the activities of the Commission on Internal Affairs.

## **MINUTES OF THE MEETING OF THE COMMISSION ON INTERNAL AFFAIRS**

**1:30 P.M.**

**Executive Office**

**Saturday, Sept. 13, 1969**

**Sioux Falls, South Dakota**

The meeting was called to order by B. J. Begley, M.D., Chairman. Present were Doctors B. J. Begley, C. Rodney Stoltz, James Shaeffer and E. A. Rudolph.

Dr. Stoltz reported on the proposed loan program for para-medical personnel utilizing the funds of the Benevolent Fund. He stated that the committee will draw up the necessary forms so the program can begin operating as soon as possible.

Mr. Richard Erickson discussed the financial statement of the Association for the month of August. This statement represents four months of operation. Dr. Begley suggested that the items Public Relations, Physician Travel, Staff Travel, and Legislative Expense be itemized for the Budget and Audit Committee meeting at the end of the fiscal year. Dr. Shaeffer moved that such a break-down be made available to the Budget and Audit Committee. The motion was seconded by Dr. Stoltz and carried.

After discussion, Dr. Begley moved that the Commission recommend to the Council that the Commission on Communications and the Commission on Liaison with Allied Organizations be combined into one Commission consisting of twelve members, and that this change in the Bylaws be submitted to the House of Delegates at the 1970 annual meeting. The motion was seconded by Dr. Shaeffer and carried.

The meeting adjourned at 3:00 P.M.

Dr. Lewis moved that the Commission's recommendation to combine the Commission on Communications and the Commission on Liaison with Allied Organizations into one commission with twelve members be accepted and that the Council recommend a bylaw change permitting this. The motion was seconded by Dr. Quinn and carried.

Dr. Muggly moved that the Council accept the report of the Commission on Internal Affairs. The motion was seconded by Dr. Leigh and carried.

The meeting adjourned at 4:00 P.M.

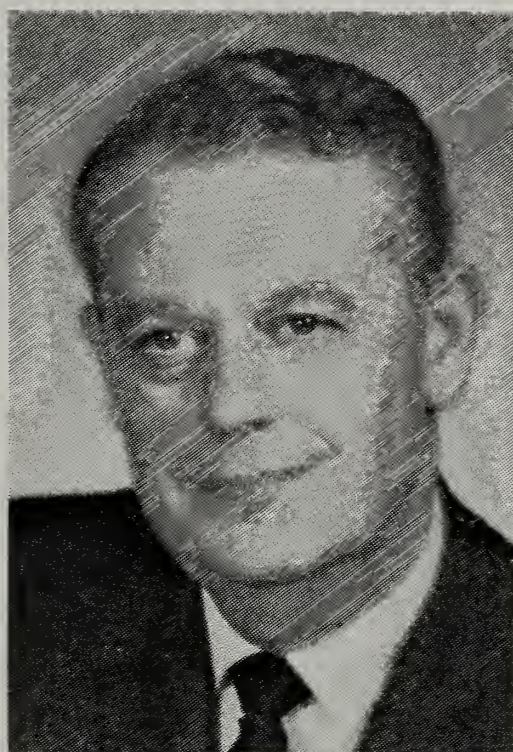
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## **AAP STATEMENT ON DRUG ABUSE**

To combat drug abuse among adolescents, information about drugs should be presented honestly; a suitable environment should be created to relieve school and family pressures, and youngsters should be helped to find better challenges. These are among the recommendations made by the American Academy of Pediatrics' committee on youth which also recommends that pediatricians recognize the different motivations for drug abuse by adolescents and appreciate the need for confidentiality in treating the problem.



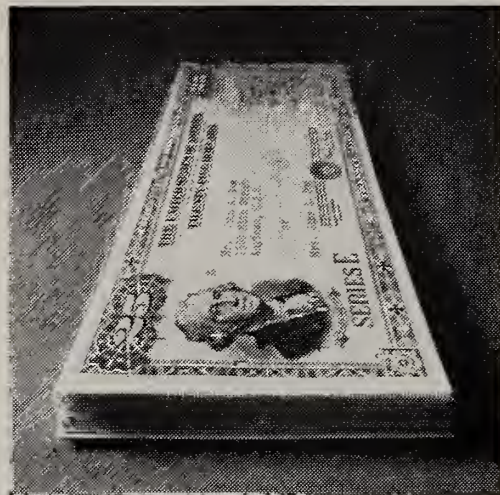
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# MEDICAL ASSOCIATION

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News Notes • Changes • Births • News

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## Pop's Proverbs

Doubt is the first step  
toward knowledge.

A combined meeting of legislative representatives of South Dakota, North Dakota, Minnesota and Iowa was held in October at the State Capitol in St. Paul. The meeting, dealing with medical education in the north central area was attended by **R. R. Giebink, M.D.**, Sioux Falls; **G. Robert Barron, M.D.**, Watertown; **Roland Hubner, M.D.**, Yankton; **George Knabe, M.D.**, Vermillion and **Richard C. Erickson**, Executive Secretary.

\* \* \*

**Chester B. McVay, M.D.**, Yankton, was honored at the 55th Annual Clinical Congress of the American College of Surgeons held in San Francisco. He received a citation and plaque for the motion picture "Femoral Hernioplasty" which was premiered at the meeting.

**G. F. Tuohy, M.D.**, Sioux Falls, and **George Smith, M.D.**, Sioux Falls, spoke on "What's with the Medics?" at three one-day conferences held in Rapid City, Huron and Sioux Falls, sponsored by the South Dakota Nurses Association.

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SOUTH DAKOTA  
MEDICAL SCHOOL  
ENDOWMENT  
FUND  
IS NEEDED

**George Knabe, M.D.**, Dean of the Medical School, attended the Watertown, Whetstone Valley and Aberdeen district meetings. He discussed the financial problems facing the Medical School and requested assistance from the physicians in obtaining the needed funds for continuing the high level of education offered at the University Medical School.

\* \* \*

**E. T. Lietzke, M.D.**, Beresford, and **D. L. Scheller, M.D.**, Arlington, attended the annual meeting of the American Academy of General Practice in Philadelphia.

\* \* \*

The Brookings Clinic has announced the association of **Curtis Wait, M.D.** Dr. Wait graduated from the University of Iowa and completed his internship at Camp Pendleton, California. He is a general practitioner.



**Self-employed physicians now insured for disability under Social Security** — Many self-employed physicians reached an important social security landmark this October. With their earnings covered since 1965, they have now contributed to social security long enough to be insured for disability. Social Security disability benefits can be paid to an insured person under 65 who has a physical or mental impairment so severe as to keep him from doing any substantial work for a year or longer. Payments begin after a waiting period of 6 full calendar months.

Benefits can be as much as \$218 a month for a disabled person alone and up to \$434.40 a month for a family. Self-employed physicians disabled in the immediate future, however, would probably not yet be eligible for these maximums since their earnings have been covered by social security for a relatively short time. Benefits are figured from a person's average covered earnings over a period of years.

"This disability protection can be a valuable supplement to the physician's private insurance," said Bernard Popick, director of social security's disability program. "It is part of the total social security package of protection — disability, retirement, survivors and health insurance—toward which the physician has been contributing."

The Laboratory of Clinical Medicine, 1200 S. Euclid, Sioux Falls, S. D. has announced the association of **Michael Israel, M.D.** in the practice of clinical and anatomic pathology. He has recently completed military service as Chief of Laboratory Services, U. S. Army Hospital, Bad Cannstatt, Germany.

\* \* \*

**R. H. Quinn, M.D.**, State President, made his official visitation to the Watertown District on Tuesday, October 7, the Whetstone Valley District on Wednesday, October 8, the Aberdeen District on Wednesday, October 1, and the Madison-Brookings District on Thursday, October 23. At these meetings Dr. Quinn discussed the legislative program undertaken by the State Medical Association as well as pointing out legislation of particular interest to the physicians in regards to the Regional Medical Program and the effect and future this program in conjunction with Comprehensive Health Planning may have on physicians in the state.

\* \* \*

**A. A. Hagelstein, M.D.**, Fort Meade, is spending three months in Nigeria as head of a four-man American team to reestablish a 250 bed hospital in Port Harcourt.

\* \* \*

**Carroll J. Clark, M.D.**, Watertown, attended a three day specialized conference on "Coronary Care — 1969" in Rochester, Minnesota.

The Day County Medical Center has announced the association of **Eldon Bell, M.D.** Dr. Bell is a general practitioner and recently completed ten years with the Air Force.

\* \* \*

The South Dakota Medical Assistants Society sponsored an educational workshop and symposium at the Cataract Motor Inn in Sioux Falls. Speakers included **Russell Greenfield, M.D.**, Sioux Falls, **Raymond Cornford, M.D.**, Rapid City and **Robert Hayes, M.D.**, Vermillion.

\* \* \*

The South Dakota Easter Seal Society presented a special award to **R. E. Van Demark, M.D.**, Sioux Falls, for his many years of service to the handicapped and Easter Seal Society.

\* \* \*

**Raymond Cornford, M.D.** has joined the Rapid City Medical Center in the practice of dermatology. Dr. Cornford formerly practiced in Sioux Falls.

\* \* \*

Governor Farrar spoke at the dedication of the Landmann-Jungman Hospital in Scotland. The hospital was named for **G. A. Landmann, M.D.**, a long time physician in the Scotland area.

\* \* \*

**Theodore P. Roman, M.D.**, Martin, has accepted a four-year appointment to the Mayo Clinic in Rochester. Dr. Roman will serve as a fellow in general surgery beginning January, 1970.



## DIRECTORY

THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION  
Organized 1882 711 North Lake Avenue  
Sioux Falls, South Dakota 57104

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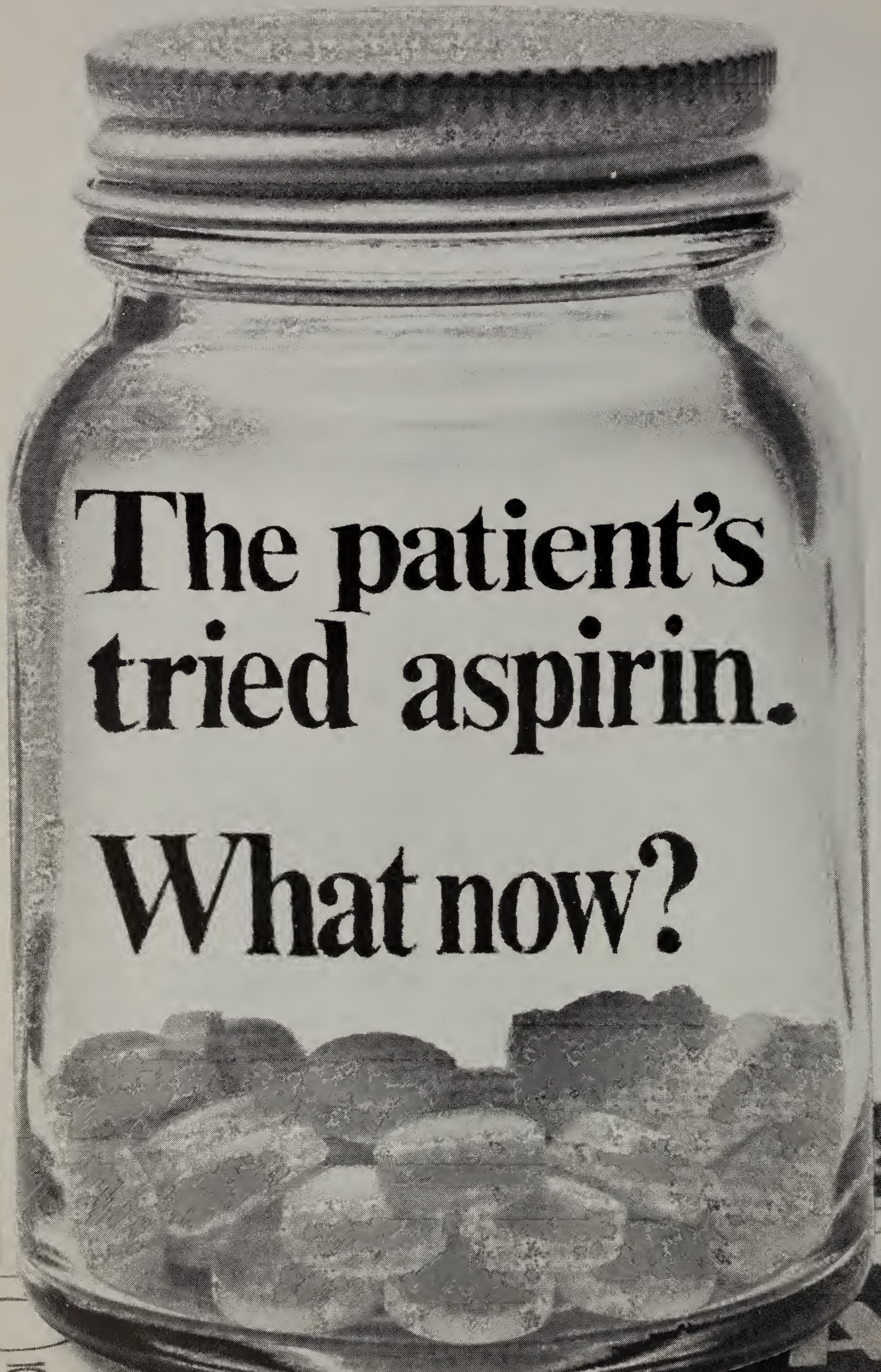
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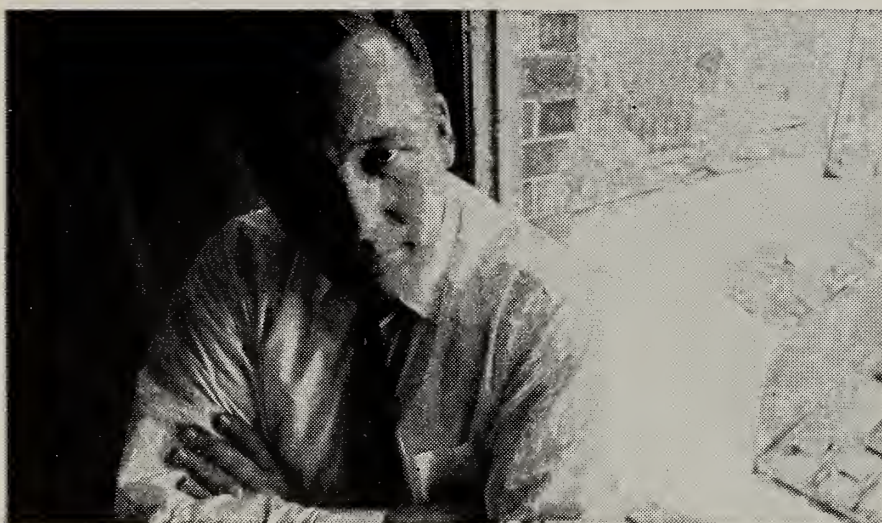
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